

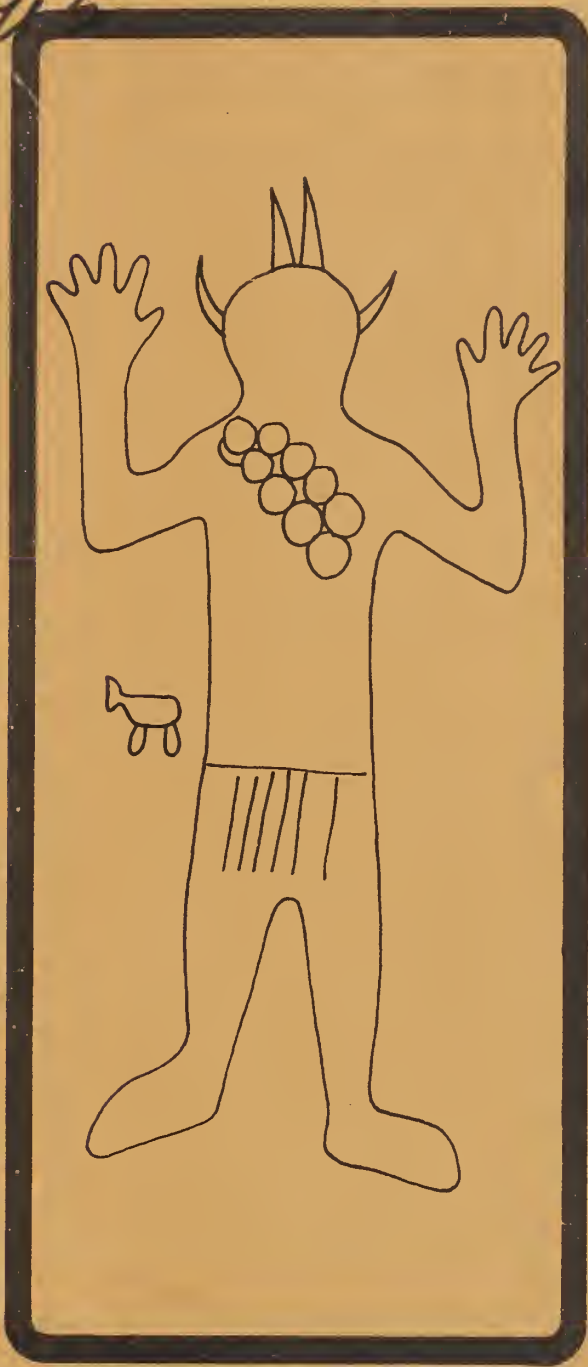
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MISCELLANEOUS PAPERS NOS. 22-32



Contributions by

Julia D. Dougherty
Dee F. Green
Rex L. Tjaden
Curtis F. Schaafsma
Charles M. Sheldon
Joseph A. Tainter
Regge N. Wiseman
Harlow A. Yaeger

November 1978

Cultural Resources Report



USDA FOREST SERVICE
SOUTHWESTERN REGION
ALBUQUERQUE, N.M.

NO. 25

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CULTURAL RESOURCES REPORT NO. 25

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PAPER NUMBER TWENTY-TWO

AN ARCHEOLOGICAL REPORT ON THE
MATERIALS RECOVERED FROM SITE AR 03-07-01-38
KAIBAB NATIONAL FOREST, ARIZONA

By

Julia D. Dougherty
and
Dee F. Green

Introduction

In the fall of 1975, the junior author was asked by the Kaibab National Forest to do a cultural resources survey of a proposed materials pit on the North Kaibab Ranger District. Approximately eight acres were involved where lithic debris was widely scattered over the ground surface. No particular concentration of artifacts or waste could be discerned; nevertheless, a site number (AR 03-07-01-38) was assigned to the area and the materials removed for analysis (Green, 1975). This document reports that analysis which was accomplished by the senior author.

Environment and Background

Site 38 is located near the bottom of the western escarpment of the Kaibab Plateau at the head of Snake Gulch, a tributary of Kanab Creek and at an elevation of approximately 6500 feet. Detailed locational data is on file with the Forest Service. The site environment is dominated by juniper with scattered pinyon, and grasses and cacti understory. Geologically, the site is located on tailings of Hermit shale which rise in a cliff east of the site. Coconino sandstone is also exposed above the shale formation and the cliff is capped with Kaibab limestone (Moore, Wilson, O'Haire, 1960).

Culturally little is known of the prehistory in the vicinity of the site. Teague and McClellan (1978) during their survey of lands adjacent to the Grand Canyon, put three transects in the Snake Gulch area southwest of the site. Transect 79 discovered a ". . . thin, chipped stone lithic scatter . . ." designated Site 72 AZ:B:7:12(ASM) (Teague and McClellan, 1978: 83, 242). Their site was dominated by materials of chalcedony with little chert noted. One Elko site-notched point was recovered but no other specimens with retouch or evident edge damage were recovered (Teague and McClellan, 1978: 84). We are not aware of any other professional work in the vicinity of the site. The region surrounding the site is known as the Arizona Strip and readers are referred to various works from that area for background information (Aikens 1966, Baldwin 1950, Colton 1952, Holmer 1977, Moffit and Chang 1975, Shutler 1961, and Thompson 1976).

Analysis

A total of 55 artifacts were collected in the survey area. Raw materials represented include primarily chert, and chalcedony,

see Tables 1 and 2. All the materials except the quartzite are probably of local origin since the Kaibab limestone produces nodules of both chert and chalcedony. One quartzite and one shale flake complete the assemblage. There are no ceramics found in association with this collection. This does not necessarily indicate that the collection is preceramic, only that it is aceramic.

Analysis of lithic material included observation of several morphological attributes. These attributes resulted from either: 1) technique of manufacture, or 2) the flaking quality of the raw material. Flakes were measured for length, width, platform length and width, and thickness. Maximum dimensions were recorded for cores. Wear and retouch were noted but not observed microscopically, see Table 2. All flakes, with the exception of three, show signs of utilization. In addition, 24 of the 46 flakes represented in the sample show evidence of retouch. One flake displaying total dorsal cortex is the only primary decoration flake represented, with the remainder being secondary removals. Of the nine cores in the sample, five show evidence of core preparation, see Table 3.

Discussion

The interpretation of Site 38 has several problems. First is the manner in which the artifacts were distributed over the ground surface. Second, and related to point 1, the limited nature of the survey (8 acres) does not allow placement of the site in its larger context. Third, there is little or no comparative material from the area.

The scattered distribution of the artifacts may have resulted from deposition at widely different points in time and/or by agents not culturally related. The collection could also possess collection bias resulting in an under-representation of debitage. The collection could represent a culturally related sample which was dispersed in an area away from a larger but nearby site. Since no reconnaissance of the vicinity outside the project was made, there is no data on this point. Site 38 does not appear to be very similar to AZ:B:7:12(ASM) (Teague and McClellan, 1978) except that both are lithic sites with tools made of the local cherts and chalcedonys. Teague and McClellan (1978: 84) report no cores from their site and, in fact, state that ". . . Cores were rare within the study area, even at quarry sites" (Teague and McClellan, 1978: 32). At Site 38, nine cores (16 percent of the specimens) were recovered. The Elko point found at AZ:B:7:12 is of little help since its

occurrence as a time marker in the Arizona Strip is open to question (Fowler et. al., 1973; O'Connell 1967). None of the artifacts at Site 38 are diagnostic time markers.

Thus, we are left with a situation at Site 38 where neither its cultural nor functional position can be argued very adequately. At the most we would conjecture that the site was some sort of processing station. Perhaps when additional work has been done in the area and the prehistory is understood on more than a cursory basis, this small collection will assume some value in understanding the prehistoric record.

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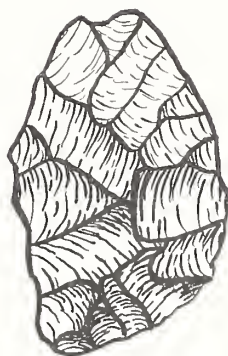
FIGURE 1



reverse

07-01-38-20

Actual Size



reverse

07-01-38-16

Actual Size

TABLE 1
Percentages

| Raw Materials | |
|---------------|----------------------|
| Type | Percentage in sample |
| Chert | 52.17 |
| Chalcedony | 43.49 |
| Quartzite | 2.17 |
| Shale | 2.17 |

| Morphological Attributes | |
|--------------------------|----------------------|
| Attribute | Percentage in sample |
| Termination | |
| Feather | 95.66 |
| Hinge | 2.17 |
| Step | 2.17 |
| Platform Lipping | 36.96 |
| Undulations | |
| None | 54.35 |
| Observable | 36.96 |
| Pronounced | 8.69 |
| Eraillures | 26.09 |
| Cortex | |
| Platform | 43.48 |
| Partial Dorsal | 54.35 |
| Total Dorsal | 2.18 |
| Platform Crushing | 15.22 |
| Flaking quality | |
| Pronounced choncoidal | 6.52 |
| Choncoidal | 69.57 |
| Natural fracture | 23.91 |

TABLE 2
FLAKE MORPHOLOGY

| ID Number | Raw Material | Flake Termination | | | | Bipolar Flaking | Split Bulb or Recursion | Lipping | Fissure | Ondulations | | | Flake # on Platform | Presence of Cortex | | | Platform Preparation | | | Flake Dimensions | | | Platform Dimensions | | | | Thickness | | Flaking Quality | | | | Comments |
|-----------|--------------|-------------------|-------|------|---------|-----------------|-------------------------|---------|---------|-------------|------------|------------|---------------------|--------------------|--------------|----------|----------------------|------------|-----------|------------------|------------|-----------|---------------------|------|------------|----------------|-----------|------|-----------------------|------------|------------------|--|----------|
| | | Feather | Hinge | Step | Reverse | | | | | Absent | Observable | Pronounced | | Partial Dorsal | Total Dorsal | Abrasion | Crushed | Max Length | Max Width | Ratio LxW | Max Length | Max Width | Ratio LxW | Bulb | Below Bulb | Weight (Grams) | Retouch | Wear | Transverse Conchoidal | Conchoidal | Natural Fracture | | |
| 34 | Chert | X | | | | X | | | | | | 4 | X | | | 42 | 47 | | 10 | 9 | 18.8 | X | X | X | | | | | | | | | |
| 20 | " | RETOUCHED | | | | X | | | | | | - | | | | 40 | 33 | | | 7 | 11.6 | X | X | X | | | | | | BIFACE | | | |
| 16 | " | RETOUCHED | | | | X | | | | | | | X | | | 41 | 26 | | | 5 | 5.2 | X | X | X | | | | | | BIFACE | | | |
| 42 | Chal. | X | | | | | | | | | X | 4 | X | | | 32 | 21 | | 7 | 8 | 6.4 | X | X | X | | | | | | | | | |
| 17 | Chert | X | | | | X | | X | | | | 3 | X | | | 38 | 27 | | 3 | 4 | 4.8 | X | X | X | | | | | | | | | |
| 19 | " | X | | | | X | | X | | | X | 1 | X | | | 36 | 39 | | 6 | 4 | 9.4 | X | X | X | | | | | | | | | |
| 21 | " | X | | | | | | X | | | | 3 | X | | | 35 | 29 | | 5 | 4 | 3.9 | X | X | X | | | | | | | | | |
| 18 | " | X | | | | X | | X | | | | 4 | | | | 34 | 26 | | 4 | 5 | 3.6 | X | X | X | | | | | | | | | |
| 1 | Chal. | X | | | | | | X | | | | 2 | | X | | 71 | 37 | | 13 | 11 | 28.3 | X | X | X | | | | | | | | | |
| 5 | Chert | X | | | | X | | X | | | | 3 | X | X | | 38 | 19 | | 3 | 4 | 3.2 | X | X | X | | | | | | | | | |
| 8 | Chal. | | X | | | X | | | | | 0 | | | X | | 25 | 33 | | 7 | 7 | 7.0 | X | | X | | | | | | | | | |
| 48 | " | X | | | | | | X | | | 2 | X | | | | 67 | 24 | | 11 | 9 | 19.1 | | X | X | | | | | | | | | |
| 7 | Chert | X | | | | | | X | | | X | 3 | X | | | 37 | 23 | | 6 | 5 | 5.1 | X | X | X | | | | | | | | | |
| 23 | Chal. | X | | | | X | | | | | 4 | X | | | | 37 | 34 | | 8 | 7 | 8.3 | X | X | X | | | | | | | | | |
| 41 | " | RETOUCHED | | | | | | | | | 1 | X | X | | | 32 | 34 | | 6 | 8 | 10.3 | X | X | X | | | X | | | | | | |
| 11 | " | X | | | | | | | | | X | 1 | | | | 53 | 38 | X | 10 | 12 | 27.6 | | X | X | | | X | | | | | | |
| 40 | Chert | | | | | | | X | | | 4 | | | | | 45 | 31 | | 6 | 9 | 14.7 | X | X | X | | | | | | | | | |
| 32 | Chal | X | | | | | | X | | | 2 | | X | | | 33 | 26 | | 7 | 6 | 6.2 | X | X | X | | | X | | | | | | |

TABLE 2
FLAKE MORPHOLOGY

| ID Number | Raw Material | Flake Termination | | | | Bipolar Flaking | Lipping | Pliasure | Ondulations | | | Fractures | Dorsal # of Flake Scars | Presence of Cortex | | | Platform Preparation | | | Flake Dimensions | | | Platform Dimensions | | | | Thickness | | Weight (Grams) | | | | Flaking Quality | | Comments |
|-----------|--------------|---------------------|-------|------|----------|-----------------|---------|----------|-------------|------------|------------|-----------|-------------------------|--------------------|----------------|--------------|----------------------|---------|------------|------------------|-----------|------------|---------------------|-----------|------|------------|----------------|---------|----------------|-----------------------|------------|------------------|-----------------|--|----------|
| | | Feather | Hinge | Step | Perverse | | | | Absent | Observable | Pronounced | | | Platform | Partial Dorsal | Total Dorsal | Abrasion | Crushed | Max Length | Max Width | Ratio LxW | Max Length | Max Width | Ratio LxW | Bulb | Below Bulb | Weight (Grams) | Retouch | Wear | Pronounced Conchoidal | Conchoidal | Natural Fracture | | | |
| 2 | Chert | X | | | | | | X | | X | | X | 1 | | X | | | | 46 | 31 | | 15 | 7 | | | 10 | 10 | 19.4 | X | X | | X | | | |
| 30 | Chal. | X | | | | | | X | | X | | X | 2 | | X | | | | 25 | 24 | | 11 | 4 | | | 5 | 4 | 2.6 | | X | | X | | | |
| 9 | Chert | X | | | | | | X | | | | X | 4 | | X | | | | 37 | 53 | | 25 | 12 | | | 14 | 14 | 26.2 | X | X | | X | | | |
| 14 | " | X | | | | | | X | | | | X | 2 | | X | | X | | 29 | 35 | | 32 | 7 | | | 7 | 7 | 7.7 | | X | | X | | | |
| 4 | Chal. | X | | | | | | | X | | | X | 2 | | X | | | | 38 | 38 | | 38 | 14 | | | 13 | 9 | 16.9 | X | X | | | X | | |
| 22 | Chert | X TERMINATION ONLY | | | | | | | X | | | | 3 | | | | | | 35 | 27 | | 25 | 8 | | | 8 | 6 | 7.9 | X | X | | | X | | |
| 39 | " | X | | | | | | | | X | | | 2 | | X | | | | 36 | 18 | | 14 | 6 | | | 7 | 6 | 4.6 | X | X | | X | | | |
| 25 | Chal. | X | | | | | | | X | | | | 3 | | X | | | | 18 | 26 | | 23 | 7 | | | 7 | 5 | 3.1 | | | | | X | | |
| 38 | " | | | X | | | | | X | | | | 1 | | X | X | | | 22 | 20 | | 13 | 4 | | | 5 | 4 | 2.2 | | X | | X | | | |
| 52 | " | X | | | | | | | X | | | | 2 | | X | X | | | 28 | 14 | | 14 | 8 | | | 8 | 7 | 2.6 | | X | | X | | | |
| 12 | " | X | | | | | | X | | X | | | 3 | | X | | | X | 50 | 38 | | 24 | 8 | | | 11 | 11 | 31.4 | | X | | | X | | |
| 13 | Chert | X | | | | | | | X | | | | 1 | | X | X | | | 30 | 37 | | 36 | 13 | | | 11 | 6 | 10.6 | | | | | X | | |
| 3 | C. al. | X | | | | | | | | X | | | 2 | | X | | X | | 27 | 26 | | 14 | 3 | | | 7 | 6 | 5.2 | X | | | X | | | |
| 27 | Quartzite | UNABLE TO DETERMINE | | | | | | | | | | | 1 | | | | | | 28 | 23 | | | | | | | 8 | 6.7 | X | X | | | X | | |
| 35 | Shale | X | | | | | | X | | X | | X | 1 | | X | | | | 33 | 29 | | 27 | 8 | | | 10 | 8 | 7.1 | | X | | X | | | |
| 15 | Chert | X | | | | | | | X | | | | 1 | | X | | | | 33 | 26 | | 24 | 5 | | | 6 | 6 | 5.1 | X | | | | X | | |
| 53 | " | X | | | | | | | X | | | | 1 | | X | | | | 20 | 27 | | | | | | | 9 | 4.5 | X | X | | X | | | |
| 46 | " | UNABLE TO DETERMINE | | | | | | | X | | X | | 3 | | | | | | 47 | 26 | | 18 | 7 | | | 12 | 10 | 14.0 | X | X | | X | | | |

11

[illegible]

TABLE 3
Core Morphology

| | Raw Material | Core Type | Cortex | Thick- ness mm | Length mm | Width mm | Weight | Comments |
|----|--------------|------------|--------|----------------------|--------------|-------------|--------|-------------------------|
| 6 | Chal. | Polyhedral | x | 6 | 50 | 28 | 20.3 | Platform preparation |
| 26 | Chert | Amorphous | x | 1 | 47 | 41 | 25.8 | Two small chips removed |
| 10 | Chert | Polyhedral | x | 5 | 57 | 29 | 38.0 | Platform preparation |
| 49 | Chert | Conical | x | 4 | 49 | 23 | 16.4 | Crushing |
| 29 | Chal. | Amorphous | x | 7 | 42 | 21 | 10.6 | |
| 5 | Chal. | Discoidal | x | 13 | 56 | 44 | 38.1 | Platform preparation |
| 31 | Chal. | Polyhedral | x | 7 | 43 | 30 | 19.4 | |
| 50 | Chert | Polyhedral | x | 5 | 37 | 30 | 18.8 | |
| 24 | Chal. | Amorphous | x | 6 | 29 | 22 | 4.7 | Crushing |

PAPER NUMBER TWENTY-THREE

AN ARCHEOLOGICAL SURVEY ADJACENT SAN MATEO MESA
CIBOLA NATIONAL FOREST, NEW MEXICO

By

Curtis F. Schaafsma

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Introduction

In conjunction with the plans of Houston Oil and Minerals Company, Inc., to conduct explorations for uranium on land owned by the USDA Forest Service, Cibola National Forest, near San Mateo in McKinley County, New Mexico, the School of American Research Contract Archaeology Program was asked to conduct an archeological clearance survey of lands on which mining operation are to commence. The School performed the survey under authority of an Antiquities Permit issued by the Forest Service, Region 3, on February 6, 1975. The survey included only those areas that would be suitable for drill locations and access roads. Accordingly, areas of steep talus, cliff and canyon bottom were not included in the survey. A detached area is hereafter called the East Section (specific locational data is available from the Forest Service or the School of American Research). Project Director was Curtis F. Schaafsma. Survey crew members were Polly Schaafsma (crew chief), Jane Whitmore, Barbara Stanislawski, Nena Powell, Emily Abbink, Kit McCrary, Marsha McCrary, Chris Martin, and Hoski Schaafsma. The survey was conducted between March 16 and April 15, 1977. The project was implemented under the direction of John D. Beal, Administrator of the School's Contract Archaeology Program. Field contact with Houston Oil and Minerals was maintained through Mr. Jim Cappa, Project Geologist.

It was anticipated that surface and subsurface disturbance to cultural resources might result from construction of access roads, activity around the drill hole locations, maneuvering of heavy equipment, material stock piling and drilling fluid overflows. Henceforth, all of these activities will simply be referred to as construction activities.

Survey and Recording Methods

The survey was conducted by the crew members who were spaced 50 feet apart in the woods and 75 feet apart in open areas. In order to maintain a consistent orientation, the person on the outside of the line marked his path with flagging tape, forming a line of flags which became the control line for the next transect. Generally, two crews of four persons were used; occasionally, however, in areas of low site density, the two crews worked together forming a single line of eight people. The

crew worked at a speed that allowed a ground coverage of about 6 linear miles a day; less when several sites had to be recorded. The use of this crew spacing and crew speed allowed for the ground to be covered systematically and a wide range of archeological manifestations to be located.

It will be observed (Table 1) that isolated projectile points and large artifacts were given site numbers. These were recognized because of their information potential; however, the survey methods were not oriented toward the location of every projectile point or isolated metate. Thus, while these small activity loci were recorded as found, the crew spacing, size and speed were determined by the goal of recognizing every habitation and kind of site described, as opposed to isolated artifacts. At each site, a description of the site, photographs (a minimum of one per site), sketch maps and survey area maps were made, and sites were flagged. A summary of the information recorded at each site is presented in Table 1.

Environment

Topography and Geology. San Mateo Mesa is a massive uplift of sedimentary sandstones and shales of the Upper Cretaceous Mesa Verde Group. This uplift is related to the regional tectonic feature known as the San Juan Basin. Sandstone of the Point Lookout formation from the upper mesa and shales of the Menefee formation are exposed by erosion in the canyon bottoms. These strata emerge on the east along the valley of San Lucas Arroyo and rise steeply toward the west forming a series of tilted mesas on the east side of the survey area. These mesas have in turn been eroded producing a number of short side canyons draining into San Lucas Arroyo. The valley of San Lucas Arroyo is located at an elevation of approximately 7,000 feet. The strata rise over 600 feet in the first mile west of San Lucas Arroyo, and at the high mesa on the north side of El Derrame Canyon (Section 27) it is over 8,000 feet high. It remains a high flat mesa of approximately 8,000 feet until within the vicinity of Mulatto Canyon which bisects the mesa on the northwest. The north and east sides of the mesa are eroded into three large drainages, El Derrame, Polvadera, and Rincon de la Gorda. Several high isolated mesa ridges, such as Banco Isidro, are situated between the drainages and project northward from the main mesa. North of Mulatto Canyon is a sloping mesa that has been named Mulatto Mesa for purposes of describing the survey area. This mesa slopes to the north and merges with the valley to the north just beyond the survey in Section 6. Quaternary alluvium fills the wide valleys.

Vegetation. The mesa tops are covered with a mixed pinyon and juniper woodland with occasional open areas of grassland. The pinyon-juniper woodland at 8,000 feet at this latitude are near the upper limits of their range and by 8,200 feet, as on several high points on the southern mesa rim, are being replaced by forests of ponderosa pine. The woods on the high mesas are characterized by large trees with open grass land between. Ponderosa pine and Douglas fir are found in the canyons where shade and increased moisture encourage their growth.

The valley bottoms, as in El Derrame Canyon and Rincon de la Gorda, have low pinyon and juniper woodlands around their margins that continue up the talus slopes. The lower valley slopes are generally open grasslands with occasional stands of pinyons and juniper. The alluvial soil in the valley bottoms are generally devoid of trees and support dense stands of four-wing saltbrush. In none of the valleys is the seasonal moisture sufficient to support a riparian vegetative community.

Fauna. Animals on the mesa and in the surrounding valleys are those characteristic of this environment in the Southwest. A discussion of the fauna from Chaco Canyon can be found in Vivian and Mathews (1963: 16-22). Their discussion emphasizes the archeological occurrence of these animals. The present fauna of San Mateo Mesa is heavily distorted by the presence of cattle and controlled by game animal herds. For this reason, the present faunal populations probably do not reflect those upon which the prehistoric populations were dependent. Especially noticeable during the survey were the presence of mule deer and elk.

Climate. No detailed study of the climate of San Mateo Mesa is available. An initial sketch of the climate is, therefore, offered here which is derived from the study of the climate of New Mexico prepared by the State Planning Office (Tuan et al. 1969). The average annual precipitation in the San Mateo area is between 12 and 14 inches per year (1969: Figure 2). However, it can be assumed that the high mesas receive significantly more moisture than the lower canyon bottoms, with the yearly difference being perhaps as much as 4 inches. If this is the case, the valleys would have about 10 inches, while the 8,000 foot high mesas would have approximately 14 inches. The precipitation is dispersed widely throughout the year, as is characteristic of the Plateau region in New Mexico, with an average of 2 inches falling in the winter months of December, January, and February (1969: Figure 9) and an average of 6 inches falling during the summer rainy season of June, July, and August (1969: Figure 11). As is characteristic of New Mexico generally, the actual rainfall of any year fluctuates widely about the mean (1969: 50-64).

Temperature can be evaluated by the average number of days without killing frost, a factor which indicates the potential of an area for agriculture. San Mateo Mesa lies between the isopleths for 140 and 160 days without killing frost (1969: Figure 38). Again, the difference between the high mesas and the surrounding canyon bottoms can be expected to vary approximately this much suggesting that the high mesas would have about 140 days without killing frost while the lower elevations would have as many as 160 days on the average. It should be observed that agriculture was well developed in the Navajo Reservoir District where the yearly average in the northeast was only 120 days (Dittert, et al. 1961: 16). The average date of the last killing frost in the San Mateo area is May 20 (Tuan, et al. 1969: 39) and the average date of the first killing frost is September 30 (1969: Figure 40). A consideration of these limiting factors and the climatological potential of the San Mateo area demonstrate that the climate is similar to that occurring elsewhere in New Mexico where large prehistoric agricultural populations have existed.

Descriptive Settlement Data

The archeological resources identified on the survey are reported in summary form in Table 1. One hundred twenty-nine site numbers were assigned. The information in this table is as concise as possible, and makes use of numerous codes. Additional information regarding these sites can be obtained from the site record forms, site photographs, site sketch maps, and field notes that are on file at the School of American Research.

Explanation of Data on Table 1

Site Number. The sites were numbered sequentially within each section; there is, thus, a separate number series for each section. The first position in the site number is the section number; the second is the number assigned to a site within the section. Since two crews worked independently from each other, it was necessary to use two numbering schemes within each section. The second series of site numbers begins with 100.

Situation. The subdivisions of situation are arranged in the following order: Terrain, Vegetation, Soil Type, Slope, Orientation, Water, and Elevation.

Terrain:

B: Bench
BC: Base of Cliff
BE: Bench edge
BS: Bench on canyon slope
CB: Canyon bottom
ER: Eroded ridges
MCE: Arroyo or canyon edge within mesa
ME: Mesa edge
MEB: First bench below low cliff on mesa edge
MS: Mesa slope or cuesta; titled strata determine topography
MT: Mesa top away from edge
SDP: Stabilized sand dune in a pass or low divide
ST: Stepped talus; broken slope alternating between low cliffs and talus
TB: Talus bottom; base of talus slope
TS: Talus slope; even talus slope

Vegetation:

PJ-D: Pinyon and juniper woodlands, dense; trees close together, much brush; trees are small, low.

PJ-P: Pinyon and juniper woodlands, parklike. Forest is open and composed of large trees, primarily pinyons; brush is minimal and generally low; grass is often thick; occasional ponderosa pine.

PJ-S: Pinyon and juniper, sparse. Trees are far apart and often stands are separated by extensive areas of grass and low brush. Some areas would be characterized as savanahs, others are grasslands with occasional trees.

Soil Type:

- SL: Sandy loam. Deep, reddish-brown, generally found on high mesa tops.
- SLG: Sandy loam mixed with gravel. Talus slopes and mesa edges commonly have the same sandy loam that occurs on the mesa but mixed with varying amounts of sandstone, ranging from small rocks to large boulders.
- SGC: Sandstone gravel and clay. The Mancos Shale of the low valleys has a mixture of sandstone layers and fine shale; when this weathers, the soil is a mixture of pieces of sandstone and fine tan to gray clay.
- SLB: Sandy loam and bedrock. In numerous places the sandy loam of the mesa tops overlies the sandstone bedrock. The bedrock either appears as low ledges or as semicontinuous layers where the strata are tilted.
- SD: Stabilized sand dune. In several areas, the topography acts as a funnel for the wind so that aeolian sand is dropped. These dunes are now stabilized, covered with trees and grass and are generally a reddish color indicating that they are not sand weathered from the local Mesa Verde formation. They may correlate with the Altithermal dunes recorded by Bryan and Toulouse (1943).

Slope:

The percent of slope is entered directly in Table 1.

Orientation:

The orientation or exposure is entered directly according to the abbreviation for each of the eight main points of the compass.

Water:

- DM: Dry Mesa. High mesa top with no obvious nearby water sources.
- SWC: Seasonal water in canyon. Water is seasonally available in generally dry arroyos. No water observed within 1/4 mile at time of survey.
- TW: Tinajas (potholes) with water at time of survey within 1/4 mile. In these cases, it is very likely that access to stored water influenced settlement.

Elevation:

The elevation of each site is recorded on Table 1 to the nearest 20 foot contour interval from the USGS map.

Description. Each site is described on Table 1. This description includes a summary of the site type (hogan, sherd area, rock-shelter, etc.), the main characteristics of the structures, and any outstanding features with surface remains, a description of surface artifacts, if any, and finally, the overall site size in square meters. All measurements were made by pacing, and are, therefore, approximate. When the field indications for ceramics are included in the description, they are given in the following code:

- AP: Awatobi Polychrome (or close equivalent)
AZ: Acoma or Zuni Polychrome (19th century)
EB: Esquevada Black-on-white*
GB: Gallup Black-on-white*
IC: Indented Corrugated*
KNB: Kana'a Neckbanded*
McEB: McElmo Black-on-white*
NU: Navajo Utility*
PB: Puerco Black-on-white; well polished, white slip, iron paint.
PC: Plain Culinary (PII-III plain utility)*
WR: Western Redware; several type names for western New Mexico red pottery with black iron paint: Wingate Black-on-red; Puerco Black-on-red, etc. Actual type designation awaits close inspection.

*Types with an asterisk are probably fairly accurate, even though based upon field identifications. Others are dubious or approximate as noted.

Culture. The cultural affiliation(s) of each site are recorded in this column. The first line presents the general culture (Navajo, Anasazi, etc.), the second (when applicable) is the phase of subdivision of the culture, and the third entry is the approximate date. In all cases, these are field identifications based upon surface evidence.

Function. When the function of a site can be inferred from surface indications, it is listed in this column.

TABLE 1 - SITE LOG

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|------------------------------------|--|-----------------------------|---|---|
| 1-1 | ME, PJ-D SL 2% W DM 7900 | Sweatlodge; 2m dia. Door to east. ENE of door is 2m diam. pile of FC rock, charcoal. 400m ² . | Navajo Recent 1920-40 | Sweatlodge | Avoid-flagged. Relates to Navajo settlement at 12-106 |
| 1-2 | MCE, PJ-D; SL 10% NE DM 7880 | Log & stone shelter E. door; 2-3m diam. sweatlodge 2m diam. door to S. buned rock pile; corral; 2nd shelter, hearth & cans to N. 3,000m ² . | Navajo Recent 1920-40 | Temporary camp sheep enclosure sweatlodge | Avoid-flagged. Relates to Navajo settlement 12-106 |
| 1-3 | MT, PJ-P, SL 5% NE DM 7800 | 2 log structures; hogan? door to east, charcoal in side, no roof; log wall against trees; fire on N. cans. 900m ² . | Navajo Recent 1920-40 | Temporary camp | Avoid-flagged. Relates to Javao settlement 12-106 |
| 1-100 | ME, PJ-D SL 12% E DM 7800 | Circular log structure Weathered; hearth in- side; extending 31m to E and mesa is log fence no artifacts. 600m ² . | Navajo Recent 1920-40 | Temporary camp stock enclosure | Avoid-flagged. Relates to Navajo settlement at 12-106 |
| 1-101 | MEB, PJ-D SL 10% S DM 7800 | Sweatlodge; 1.5m diam. Door to south; 2 piles of FC rocks to E & NE 4m diam. 50m ² . | Navajo Recent 1920-40 | Sweatlodge | Avoid-flagged. Relates to Navajo settlement at 12-106 |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|-----------------------------------|---|-------------------------------|--|---|
| 6-1 | MCE, PJ-S SL 5% NE DM 7780 | Eroded cribbed logan hogan Hearth 6.5m NE; coffee pot, cans. 225m ² . | Navajo Recent 1920-40 | Temporary dwelling? | Avoid-flagged. Relates to Navajo settlement at 12-106 |
| 6-2 | ME, PJ-P SL 20% SE DM 7790 | Stone fire deflector. Arc: 2.6m long; 1.3m diam. .68m high/ charcoal, long handled metal serving spoon. 15m ² . | Spanish? Recent 1930-50 | Hunter or herder's camp? | Avoid-flagged. One of a series of stone arc fireplaces. Spoon shows it is recent. |
| 6-3 | ME, PJ-P SL 2% SE DM 7740 | Sweatlodge; log door in- tact faces SE toward Mt. Taylor; rope hangs from inside. 2 piles FC rock outside door. Boot leather & cans. 100m ² . | Navajo Recent 1920-40 | Sweatlodge | Avoid-flagged. Relates to 12-106. Excellent condition. |
| 6-4 | MS, PJ-P SL 10% N SWC 7460 | Brush corral with 6 sides. Opening to N. Cans & recent fires nearby. 36m ² . | Navajo Recent 1920-40 | Sheep enclosure & camp | Avoid-flagged. Minor brush walls in bluffs to N. |
| 6-5 | MS, PJ-P SL 12% NE SWC 7460 | 3 circular-oval log and brush enclosures in line 50m long. Hearth remains in centers near E. open- ings. 4-5m diam. Glass & cans. 1500m ² . | Navajo Recent 1920-40 | Temporary summer camp; sheep enclosure | Avoid flagged. May relate to Navajo settlement 12-106 |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|--|---|--|----------------------------------|--|
| 6-100 | MT, PJ-P SL 5% N DM 7750 | 1 circular log and brush enclosure, 4.5m diam. built against a pinyon tree; E. entrance; cans. 400m ² . | Navajo Recent 1920-40 | Temporary camp; sheep enclosure. | Avoid-flagged. Related to Navajo settlement at 12-106 |
| 6-101 | CB/TB, PJ-S SL 40% S SWC 7300 | Masonry semi-circle; fire-reddened interior; shelter and hearth; no artifacts. 100m ² . | Spanish? | Temporary camp | Avoid-flagged. |
| 7-1 | BS, PJ-P SL 4% ENE SWC 7540 | Remnant of brush shelter 4m diam. scattered fire inside; cans. 16m ² . | Navajo or Spanish Recent | Temporary camp | Avoid-flagged. |
| 7-100 | MCE/MEB, PJ-P SLG 50% W SWC 7820 | Natural rock shelter with SS masonry wall across front. Pinyon log in wall Dry fill 20cm deep; 8m long x 2.5m wide x 1.5m high; roof is fire-reddened & blackened; Pottery inside & down-slope: EB, McEB, IC. 200m ² . | Anasazi PII-early PII (1050-1200) | Seasonal camp | Avoid-flagged. Only Anasazi dwelling-camp |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|---------------------------------|---------------------------------------|---|
| 7-101 | TS, PJ-S SLG 40% E SWC 73-7400 | Foot and horse trail from Mulatto Canyon to Mulatto Mesa. Marked by rock cairn at top. | All cultures | Access | Avoid-not flagged. Access trail used by all cultures. |
| 8-1 | TB, PJ-S SGC 10% SE SWC 7100 | Rockshelter in large boulders; fill in shelter has charcoal, lithics & pottery: EB, GB, IC; 660m ² . | Anasazi PII-III | Seasonal camp | Avoid-flagged. Only Anasazi shelter in Gorda Valley. |
| 8-2 | TB/ER, PJ-S SGC 8% NW SWC 7150 | Sweatlodge; 1.35m diam. x .88m high. SS slabs in base; door to north; 9m ² . | Navajo Recent 1900-40 | Sweatlodge | Avoid-flagged. |
| 8-3 | TB/ER, PJ-S SGC 10% SW SWC 7180 | Campsite; brush & stone arc, hearth inside; stone slab chair on hill; cans; 150m ² . | Spanish Recent 1910-20 | Seasonal camp | Avoid-flagged |
| 8-4 | TB/ER, PJ-S SGC 10% W SWC 7120 | Fallen round enclosure SS masonry, exterior hearth, glass & cans; 150m ² . | Spanish or Navajo 1910-30 | Seasonal camp | Avoid-flagged. |
| 8-5 | MEB, PJ-P SL 5% E DM 7800 | Navajo habitation; 2 crib- bed log hogans, large brush corral, 2 small brush structures, possible sweatlodge; 2-3 lamb pens; cans; 22,500m ² . | Navajo Recent 1890-1920 | Habitation, possibly year round | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|------------------------------|-------------------------------------|---|
| 8-100 | ER, PJ-P SGC 30% N SWC 7160 | Campsite and cairn; upright poles, slabs & forked poles; cans & glass; cairn is 63m SW of campsite; 176m ² . | Spanish Recent 1930-50 | Seasonal camp | Avoid-flagged. SS cairn is similar to 17-3 |
| 8-101 | TB, PJ-S SLB 15% SE SWC 7080 | Several SS masonry wall bases among large boulders; no artifacts; 50m ² . | Navajo? Recent | Temporary camp? | Avoid-flagged. |
| 8-102 | TB, PJ-S SLB 10% S SWC 7120 | SS masonry wall remnant and charcoal; no artifacts; 9m ² . | Navajo? Recent | Temporary camp? | Avoid-flagged. |
| 8-103 | TB, PJ-S SLB 10% SSE SWC 7160 | Semi-circular SS masonry structure, 9 x 7m, walls 40cm high; no artifacts; 60m ² . | Navajo? Recent | Temporary camp? | Avoid-flagged. |
| 8-104 | CB/ER, PJ-S SGC 50% NE SWC 7120 | Cairn of SS rocks .5m high; enamel coffee pot downslope; 50m ² . | Spanish or Anglo | Grazing area marker? and camp | Avoid-flagged. |
| 8-105 | CB/ER, PJ-S SGC 10% E SWC 7180 | Mound of SS boulders; no artifacts; 1m ² . | Anglo or Spanish | Grazing marker or claim | Avoid-flagged. |
| 9-1 | TB/ER, PJ-S SGC 10% E SWC 7250 | Slab-lined structure with E entrance defined by slabs & 2 upright posts; possible hogan; several rock piles, burned areas, can, glass, rubber-tire shoe sole; corral in narrow canyon 65mW. 5400m ² . | Navajo? Recent 1920-40 | Dwelling | Avoid-flagged. If Navajo, this site may explain numerous recent sites in vicinity representing parts of a settlement centered around this dwelling. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---|---|------------------------------|---------------------|--|
| 9-2 | TB/ER, PJ-S SGC 8% NE SWC 7260 | Hearth-deflector of SS masonry 50cm high; line of SS slabs; metal; 400m ² . | Navajo? Recent 1920-40 | Temporary camp | Avoid-flagged. May relate to 9-1 |
| 9-3 | TB, PJ-S SGC 8% S SWC 7180 | Stone masonry house foundation, single course; 12 x 5.5m; long axis E-W; cans and ash; 150m ² . | Spanish? Recent | Dwelling | Avoid-flagged. May relate to historic ranch 1/2 mile N. |
| 9-4 | TB/ER, PJ-S SGC 5% N SWC 7140 | Brush corral in small arroyo; entrance to N; stock pens in S made of boards; can, glass & 2-hand mano fragments; 525m ² . | Navajo? Recent | Stock enclosure | Avoid-flagged |
| 9-100 | CB/ER, PJ-S SL 10% NW SWC 7240-60 | Sherd area; numerous blowouts on slope in area 44m E-W x 26m N-S; ceramics: WR, PB, IC; 1250m ² . | Anasazi PIII | Seasonal work area? | Avoid-flagged. |
| 9-101 | CB/ER, PJ-S SGC 40% N SWC 7240 | Shallow dug-out lined with brush; entrance downslope to NW; 2m diam; 6m ² . | Navajo? Recent | Temporary camp | Avoid-flagged. |
| 9-102 | CB/ER, PJ-S SL 10% NW SWC 7040 | Lithic area; one-hand mano & broken (burin break) base of Armijo point found together in blow-out 30m diam; 125m N is ash-stained soil that may relate: Area B. | Archaic Armijo 2000 BC | Seasonal camp | Avoid-flagged. Only Archaic camp in this valley |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|-------------------------------------|--|--|------------------------------|--|
| 12-1 | MT, PJ-P SL 8% S DM 8060 | Base of San Jose or Bajada projectile point; 2 lithics & knife tip to N may relate; 1m ² . | Archaic San Jose or Bajada; ca. 3000 BC | Hunting | Avoid-flagged. |
| 12-2 | MT, PJ-D SL 7% NE DM 7960 | Juniper logs laid against a living tree to form a lean-to shelter; no artifacts; 25m ² . | Navajo Recent 1920-40 | Temporary camp | Avoid-flagged. May relate to hogan at 12-102 |
| 12-3 | MT, PJ-P SL 10% S DM 7920 | Arc wall of dry-laid SS. Interior reddened; charcoal scattered; no artifacts; 1.5m diam; 72cm high; 16m ² . | Spanish? Recent 1930-50 | Temporary camp | Avoid-flagged. |
| 12-4 | MT, PJ-P SL 12% SE DM 7840 | Sweatlodge; door to N; fire-reddened rocks inside; scatter of ashes and FC rocks outside door; 100m ² . | Navajo Recent 1920-40 | Sweatlodge | Avoid-flagged Relates to 12-106 200 feet to NE |
| 12-100 | CB/TB, PJ-P SL 10% E SWC 7680 | Anasazi sherd area; Navajo sweatlodge and wood pile; ceramics: EB, RMB, IC; 400m ² . | Anasazi PII; Navajo Recent | Temporary camp sweatlodge | Avoid-flagged. |
| 12-101 | MT, PJ-P SL 5% E DM 8000 | Isolated projectile point; San Jose or Bajada; complete; Polvadera Peak obsidian; 1m ² . | Archaic | Hunting | Avoid-flagged |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|---------------------------------|----------------|---|
| 12-102 | MT, PJ-D SL 10% E DM 7940 | Cribbed log hogan with 5 sides; brush corral; tin cans; 400m ² . | Navajo Historic 1900s | Dwelling | Avoid-flagged. |
| 12-103 | MT, PJ-P SL 5% E DM 8000 | Circle of piled logs, brush; tin cans, lard can, tin cup; 400m ² . | Spanish? Historic 1930-40 | Temporary camp | Avoid-flagged. |
| 12-104 | MT, PJ-P SL 5% E DM 8000 | Intact sweatlodge; tin can; 100m ² . | Navajo Historic | Sweatlodge | Avoid-flagged. |
| 12-105 | MT, PJ-P SL 5% S DM 7820 | Crude 6 sided log hogan; walls standing & collapsed; tin cans; dense charcoal pile; 120m ² . | Navajo Recent ca. 1925 | Dwelling | Avoid-flagged. Dating based on KC baking powder can. |
| 12-106 | MT, PJ-P SL 5-10% S DM 7820 | 4 cribbed log hogans facing E; roofs collapsed; Recent walls 1m high; metate, tin can, snuff can, charcoal scatter; 1800m ² . | Navajo Recent 1910-30 | Dwelling | Avoid-flagged. Main settlement for complex of Navajo sites on Mulatto Mesa. |
| 15-1 | TB/ER, PJ-S SGC 15% NE SWC 7330 | Brush shelter with W door-way; tobacco can; bottle; 25m ² . | Navajo or Hispano | Temporary camp | Avoid-flagged. Probably summer use site. |
| 15-2 | TB/ER, PJ-S SGC 30% N | Boulder & brush fence; second wall suggests corral; 2-hand mano; tobacco can; 5000m ² . | Navajo? Historic | Herdng | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|---|--------------------------------------|-------------------------|--------------------|
| 16-1 | TB/ER, PJ-S SGC 8% NW SWC 7360 | Half circle of SS boulders opening SW; brush fence to NNE; 4m ² . | Navajo or Hispano | Temporary camp; Herding | Avoid-flagged |
| 16-2 | TB/ER, PJ-S SGC 10% NW SWC 7360 | Brush corral with large boulders; 10m ² . | Navajo or Hispano Historic | Herding | Avoid-flagged. |
| 16-3 | ME, PJ-P SLB 1% NE DM 7980 | Large brush corral, oval with north opening; 500m ² . | Navajo or Hispano Historic | Herding | Avoid-flagged. |
| 16-4 | ME, PJ-P SLB 5% N DM 8000 | Low Pile of irregular slabs; 1m ² . | Unknown | Unknown | Avoid-flagged. |
| 16-100 | MT, PJ-D SL 5% NW DM 8070 | Archaic point and broken obsidian biface; 52m ² . | Archaic Armijo 2000-1000 BC | Hunting | Avoid-flagged. |
| 17-1 | TB/ER, PJ-D SGC 6% NW SWC 7250 | Circular area of burned SS, broken porcelain in center, ax cut wood & area of ash, charcoal; 400m ² . | Hispano or Navajo Historic | Camp? | Avoid-flagged |
| 17-2 | TB/ER, PJ-S SGC 8% WSW SWC 7200 | 2 dry-laid masonry structures with evidence of burning; bone, ash, ax cut wood; glass, lap stone, 1 Anasazi sherd; 1900m ² . | Navajo? Historic | Camp or Dwelling | Avoid-flagged |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|----------------------------------|------------------|--|
| 17-3 | TB/ER, PJ-S SGC 30% S SWC 7160 | 2 cairns and SS slab inscribed with Hispano names: Emilio Garcia, Daniel Martinez; 100m ² . | Hispano 1916-22 | Boundary marker? | Avoid-flagged. |
| 17-4 | CB/ER, PJ-S SGC 10% SE SWC 7220 | Remnant of masonry structure with E door; opening to N; fireplace area between openings; bottle; 40m ² . | Navajo? Historic | Dwelling | Avoid-flagged. Probably part site 17-2. |
| 17-100 | TB/ER, PJ-S SGC 8% E SWC 7240 | Petroglyph: "Juan Ortega 1913"; 1m ² . | Hispano 1913 | Record | Avoid-flagged. |
| 17-101 | TB, PJ-S SGC 10% N SWC 7200 | Upright forked cedar post and line of SS boulders 1.5m long; 100m ² . | Hispano or Navajo 1920-50 | Herder's camp | Avoid-flagged. |
| 17-102 | ER, PJ-S SGC 10% E SWC 7240 | Rock wall and burned upright posts amid cluster of large boulders on hill crest; fire reddened rock, charcoal; former brush shelter? 100m ² . | Hispano or Navajo ca. 1900 | Camp | Avoid-flagged. |
| 17-103 | ME, PJ-P SL 2% # DM 7900 | Cribbed log hogan, piles of burned rock, sherds of NU, AZ and single obsidian point base, side notched and concave base; 1000m ² . | Navajo Cabezon phase | Dwelling | Avoid-flagged. May relate to 8-5½ mi. N |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---|--|---|----------------|---|
| 17-104 | TS, PJ-S SLG 60% SE SWC 7600-7900 | Trail descending into valley from mesa top; access to mesa & valley. | All periods | Access | Avoid-flagged. |
| 18-1 | MT, PJ-P SL 2% N DM 7980 | Scatter of sherds: RMB, KNB, PC, IC; 5m ² . | Anasazi PI-II | Temporary camp | Avoid-flagged. |
| 18-2 | MCE, PJ-P SLB 8% E DM 7960 | 3 dry-laid masonry structures or hogans, A, B, C; A & B have E doorways; C less definite; no artifacts; 1800m ² . | Navajo Historic | Dwellings | Avoid-flagged. |
| 18-3 | ME, PJ-P SL 10% E DM 7940 | Isolated slab metate 1m ² . | Archaic | Camp | Avoid-flagged. |
| 18-100 | MT, PJ-P SL 8% S DM 8000 | Broken basin-type metate; lithic scatter; 350m ² . | Archaic | Camp | Avoid-flagged. |
| 18-101 | MT, PJ-P SL 8% NW DM 8030 | Isolated slab metate 22 x 36cm; 1m ² . | Archaic | Camp | Avoid-flagged. Site 10-100 is 200m NW |
| 18-102 | ME/MCE, PJ-D SLG 20% C DM 8040 | Slab-lined hearth cist with ash in interior; burned log in vicinity; 4m ² . | Hispano or Navajo Historic | Camp | Avoid-flagged. |
| 18-103 | MT, PJ-P SL 5% SE DM 8060 | Brush and log wall, wine bottles; KC baking powder can, lard can & mound of SS slabs and burned logs; 300m ² . | Hispano or Navajo Historic 1913-30 | Herding camp | Avoid-flagged. Dating based on wine bottle type. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|--|--|----------------------------------|--------------|---|
| 18-104 | MCE, PJ-P SLB 10% E DM 7950 | Site has 3 separate areas: A: 2 SS masonry walls; B: D-shaped SS masonry structure; C: pile of fire-red-dened rock and ash; possible sweatlodge; galss; cans; other historic debris; 2000m ² . | Hispano or Navajo 1930s | Dwellings | Avoid-flagged. Area C may represent part of site 18-2. |
| 18-105 | MT, PJ-P SL 15% NE DM 7940 | Isolated Projectile point base; white chert; 1m ² . | Archaic Armijo or En Medio | Hunting | Avoid-flagged. |
| 23-1 | CB/ER, PJ-S SGC 20% ESE SWC 7260 | Scatter of small lithics; hearth area with fire-cracked rock; single Archaic point of black basalt; 2000m ² . | Archaic San Jose | Campsite | Avoid-flagged. |
| 23-100 | ST, PJ-S SLG 30% S SWC 7330 | Single SS masonry hogan; walls 1m high; E doorway; charcoal; no artifacts; roof logs in interior. | Navajo Cabezon phase? | Dwelling | Avoid-flagged. Dating based on condition of logs & lack of modern artifacts. |
| 26-1 | CB/ER, PJ-S SLB 20% S SWC 7330 | Section of old road; 2 dry-laid masonry wall fragments; hearths & rusted cans; 625m ² . | Hispano or Navajo Historic | Road & camps | Avoid-flagged. |
| 26-2 | CB/ER, PJ-S SD 15% SSE SWC 7320 | 3 large chert lithics; including biface; possibly Pedernal Chert; 3m ² . | Unknown | Unknown | Avoid-flagged. Site near modern horse trail & road (26-1) |
| 26-3 | B, PJ-S SL 4% E SWC 7400 | 2 hearths; several lithics & sherd fragments; fire-cracked rock & metate fragments; 250m ² . | Anasazi PI-III | Campsite | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|--------------------------------------|---|----------------------|--------------------------|--------------------|
| 26-4 | TB/B, PJ-S SL 4% E SWC 7390 | Concentration of sherds; elsewhere burned bone; ceramics: GB, EB, IC; 200m ² . | Anasazi PII-III | Campsite | Avoid-flagged. |
| 26-5 | BE, PJ-S SLG 2% E SWC 7340 | Fireplace, rock wall arc of dry-laid masonry 40cm high; rocks inside arc are fire-reddened; outside--stock bell, bottle with patent # 94824; inside--ash, charcoal; 400m ² . | Hispano 1920-40 | Campsite | Avoid-flagged. |
| 26-6 | BE, PJ-S SL 4% SE SWC 7360 | Slab structure and large GB sherds from single vessel; 100m ² . | Anasazi PII? | Campsite | Avoid-flagged. |
| 26-7 | TB-ER, PJ-S SLG 10% S SWC 7360 | Possible hearth or slab structure; 5m ² . | Unknown | Unknown | Avoid-flagged. |
| 26-100 | SDP, PJ-P SD 20% N SWC 7360 | Charcoal stains in stabilized dunes; slab bin weathered out at top of dune; 3600m ² . | Archaic | Campsite | Avoid-flagged. |
| 26-101 | TB, PJ-S SLG 20% S SWC 7280 | 2 rectangular slab structures 100m apart. One with juniper log in wall; 25m ² each; 2000m ² overall. | Navajo? | Camp or sheep enclosures | Avoid-flagged |
| 26-102 | TB, PJ-P SLG 10% S SWC 7380 | Rectangular SS structure 3 x 3m; one to 3 courses remain; no pottery, lithics, ash; several tin cans; site used by modern campers; 320m ² . | Navajo? Historic? | Sheep pens? | Avoid-flagged |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|---|----------------------|---|
| 26-103 | BC/MEB, PJ-P SLG 10% S DM 7420 | Natural rock cavity with slab & mud mortar wall; to E is large overhang with NU pottery & few EB sherds; 100m ² . | Navajo Historic; Anasazi PII | Campsite, Storage | Avoid-flagged. |
| 26-104 | SDP/SD, PJ-P SD 10% W SWC 7420 | Ash lenses from near surface to 1m in depth in stabilized dune; hearth with burned rock, ask; metate fragments; complete metate (slab type); 2000m ² . | Archaic | Campsite | Avoid-flagged. Keep access road out of site. |
| 26-105 | ST, PJ-P SLB 40% S SWC 7480 | Gogan of SS boulders; roof beams remain on walls; E doorway; no pottery or other artifacts; 30m ² . Additional small stone structure on cliff above. | Navajo Late Cabezon | Dwelling | Avoid-flagged. Keep access road below structure. |
| 26-106 | ST/MEB, PJ-S SLB 10% S SWC 8480 | SS slab & boulder hogan; eroded roof beams on ground inside; doorway to ENE; no pottery or other artifacts; 20m ² . | Navajo Late Cabezon Phase 1840-70 | Dwelling | Avoid-flagged. |
| 26-107 | ST, PJ-P SLB 20% S SWC 7500 | 2 SS masonry & log hogans; a small stone structure; a stone wall (corral remnant?) hogan doors face E; beams suggest cribbed roofs; 800m ² . | Navajo Late Cabezon 1840-70 | Dwelling | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---|---|-----------------------------------|--------------------------|--|
| 26-108 | TB, PJ-S SLB 10% S SWC 7340 | Small SS structure at base of steep talus; one course of boulders remains; 2.5m diam. 9m ² . | Navajo? | Unknown | Avoid-flagged |
| 35-1 | BC/CB, PJ-S SLB cliff; S SWC 7300 | Spanish inscriptions: 3 crosses; 4.5m ² . | Hispano Historic | Identification | Avoid-flagged. |
| 35-2 | BC/CB, PJ-S SLB 10% NNE SWC 7300 | Rock shelter with burned juniper; wood sawed, shopped, eroded; 48m ² . | Hispano | Shelter | Avoid-flagged. |
| 35-3 | BC/CB, PJ-S SLB 10% SE SWC 7300 | Spanish inscriptions; names dates; also dry-laid masonry wall; 400m ² . | Hispano 1881?- 1919 1948 | Corral identification | Avoid-flagged. Probably associated with 35-1, 2 |
| 35-4 | CB, PJ-S SD 5% N SWC 7230 | Shaped round SS slab in stabilized dune blowout; broken pieces fit together; 1m ² . | Unknown | Unknown | Avoid-flagged. |
| 35-5 | MT, PJ-S SLB 8% E TW 7520 | Approximately 50 NU sherds from same vessel; scattered in 2 x 2m concentration; 16m ² . | Navajo Cabezon Phase? | Unknown | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|-------------------------------------|---|---------------------|----------|---|
| 35-6 | MT/MS, PJ-P SL 6% SE TW 7300 | Hearth?; scatter of fire-cracked rocks; no artifacts; 4m ² . | Anasazi | Campsite | Avoid-flagged. 35-10, Anasazi site nearby; may be related. |
| 35-7 | MT/MS, PJ-P SL 6% ESE TW 7250 | Wide, light scatter of small lithics, 2 metates, slab & shallow basin types; also large basalt lithic; possible hearths; 225m ² . | Archaic | Campsite | Avoid-flagged. Basalt biface & 3rd metate fragment found in vicinity |
| 35-8 | MT/MS, PJ-P SL 10% SE TW 7260 | Large area of scattered hearths, flakes; large SS slab metate face down in hearth; hearths marked by fire-cracked rock, discolored soil; one-hand mano, all surfaces shaped; single B/W sherd, probably later intrusion; 3750m ² . | Archaic | Campsite | Avoid-flagged. |
| 35-9 | MT/MS, PJ-P SL 10% SE TW 7280 | Stone ring of dry-laid masonry; 4m ² . | Hispano 1910-40? | Unknown | Avoid-flagged. |
| 35-10 | MT/MS, PJ-P SL 10% SE | Light lithic scatter of chert, obsidian, utilized flakes; PII-III B/W sherds; possible hearths; 900m ² . | Anasazi PII-III | Camp | Avoid-flagged. 35-6 to N may be related |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|--------------------------------------|---|---|----------------------------------|---|
| 35-11 | MCE, PJ-P SL 6% NE TW 7400 | 2-3 hearths with fire-cracked rock, soil discoloration; one biface with transverse flaking; 80m ² . | BM III-PI? | Camp | Avoid-flagged. May relate to BMIII-PI point nearby at 35-25 |
| 35-12 | MT/MS, PJ-P SL 10% SSE | Two arcs of dry-laid masonry; walls less than 1m high 203m long; a few random lithics & rusty cans; 100m ² . | Hispano? 1910-40? | Campsites | Avoid-flagged |
| 35-13 | MT/MS, PJ-P SL 10% SE TW 7300 | Slightly oval, dry-laid masonry structure; door ENE; wall incorporates 2 trees; diam. 3.5 x 4.5m; hearth 2.5m S; rusted can; 200m ² . | Navajo Historic | Dwelling | Avoid-flagged. See 35-14 & 15 for evidence of other Navajo sites in vicinity |
| 35-14 | MT/MS, PJ-P SL 8% SE TW 7320 | Large site with 4 or more hearths plus long rectangular area defined by lines of fire-cracked rock; NU sherds in association, as well as Anasazi white & culinary sherds; one grinding slab; 3200m ² . | Navajo Cabezon Phase? Anasazi PII-III | Campsites Ceremonial area: | Avoid-flagged See sites 35-15 & 103 for nearby hogans |
| 35-15 | MT/MS, PJ-P SLB 12% SE TW 7350 | 2 hogans of dry-laid masonry & 3rd crescent-shaped masonry structure; metal strips & broken worked glass in association; 825m ² . | Navajo Historic | Dwellings | Avoid-flagged. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|-----------------------------------|---|----------------|--------------------------|--|
| 35-16 | MCE, PJ-P SL 10% SE TW 7400 | Small eroded hearth with 3 undiagnostic lithics; soil discoloration; 3m ² . | Unknown | Campsite | Avoid-flagged. BMIII point at 35-25 may relate. |
| 35-17 | MT/MS, PJ-P SL 8% E TW 7480 | Possible small SS structure with RMB, EB ceramics; sparse lithic scatter; fire-cracked rocks & soil discoloration in 3 locations; 112m ² . | Anasazi PII | Campsite Field house? | Avoid-flagged. |

TABLE 1 (continued)

| SITE# | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|-------|-------------------------------------|---|--|------------------|---|
| 35-18 | CB, PJ-P SLB 10% S TW 7380 | Single hogan, round with dry-laid masonry; wagon wheel with metal stripping; 200m ² . | Navajo Historic | Dwelling | Avoid-flagged |
| 35-19 | BE, PJ-S SLB 6% SE SWC 7340 | Small rock pile, possibly cairn; 2m ² . | Hispano? | Boundary marker? | Avoid-flagged Hispano sites 35-1,2, 3 nearby. |
| 35-20 | BE, PJ-S SLB 1% S SWC 7300 | Single intact cairn 1.8m high; 1m ² . | Hispano? Navajo? | Boundary marker? | Avoid-flagged Hispano sites in vicinity (35-1,2,3). |
| 35-21 | B, PJ-S SL 3% S SWC 7360 | 3 hearths, one with upright slabs; lithic scatter; sherds: EB, IC, PC; 260m ² . | Anasazi PII | Campsites | Avoid-flagged |
| 35-22 | BE, PJ-S SL 10% SE SWC 7320 | Rock pile, probably cairn; collapsed; 3m ² . | Unknown | Unknown | Avoid-flagged |
| 35-23 | NE, PJ-P SLB 8% SE TW 7370 | Single basin-shaped metate fragment; 1m ² . | Archaic | Campsite | Avoid-flagged Detached part of site 35-115 to E |
| 35-24 | MT/MS, PJ-P SLB 8% SE TW 7260 | Isolated point, black obsidian; serrate edge, con- tracting stem; obsidian flakes upslope to N; 1m ² . | Archaic Armijo or late San Jose | Hunting | Unflagged May relate to 35-7 across arroyo to S. |
| 35-25 | MCE, PJ-P SL 10% E TW 7410 | Isolated tapered point, tip broken; corner notched; slightly convex base; 1m ² . | Anasazi BMIII-PI | Hunting | Unflagged May relate to 35-11. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|-------------------------------------|--|--|---------------------|---|
| 35-100 | CB/BC, PJ-P SLB 20% S TW 7340 | Partially walled rock shelter; sherds on slope below: PC, EB; 150m ² . | Anasazi PII | Seasonal habitation | Avoid-flagged |
| 35-101 | CB, PJ-P SLB 10% S TW 7340 | Firebox of several upright SS slabs; fire-cracked rocks downslope; one sherd: PC; 8m ² . | Anasazi PII | Cooking area | Avoid-flagged Probably relates to 35-100; date based on pottery at 35-100. |
| 35-102 | MT/MS, PJ-P SL 8% S TW 7400 | Eroding hearth, cluster of fire-reddened rock; associated area of charcoal chunks; tan-grey chert, burned bones; 30m ² . | Unknown Not Archaic | Unknown | Avoid-flagged |
| 35-103 | CB/BS, PJ-P SLB 5% S TW 7300 | 3 SS slab structures, hearths, trash; 2 small hogans, 1 firebox; slab-lined bin in one hogan; point, mano, NU, AP sherds, lithics; 900m ² . | Navajo Gobernador Phase 1750- 1800 | Dwelling | Avoid-flagged Oldest Navajo site in survey area. |
| 35-104 | CB, PJ-P SLB 10% S TW 7310 | SS slab wall remnant, originally enclosed against SS ledge; possible 2nd structure on same ledge; 100m ² . | Navajo Cabezon Phase? | Lamb pen? | Avoid-flagged Probably relates to 35-103, 100m to E. |
| 35-105 | CB/BS, PJ-P SL 5% S TW 7320 | Hearth & lithic area; burned rock, chert, Grants obsidian; one-hand mano; 150m ² . | Archaic? | Campsite | Avoid-flagged Similar to 35-11 up canyon to W. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|---|---------------------------------|----------------------|--|
| 35-106 | MCE, PJ-P SLB 3% S TW 7380 | Cairn, 1m high; overlooks fork in side drainage; 1m ² . | Navajo or Hispano | Boundary marker? | Avoid-flagged Compare with 35-20. |
| 35-107 | MT/MS, PJ-P SLB 8% S TW 7420 | Sherd area, scraper, one piece chert; sherds from wide-mouth olla; some IC: 225m ² . | Anasazi PII | Possible campsite | Avoid-flagged Could relate to 35-100, 1/4 mi. S. |
| 35-108 | MT/MS, PJ-P SLB 8% SE TW 7400 | 2 masonry hogans, corral, hearths; modern glazed ceramics, purple glass; trash not abundant; 4900m ² . | Navajo Historic 1800-1920 | Dwelling | Avoid-flagged |
| 35-109 | MCE/MEB, PJ-P SLB 10% E TW 7370 | SS slab masonry structure below and E of site 35-106 (cairn); ash, charcoal in interior fill; slight over- hang; Pueblo sherd (PC) downslope; 36m ² . | Navajo? Anasazi? | Campsite? | Avoid-flagged |
| 35-110 | CB/BC, PJ-P SLB cliff W DM 7500 | Masonry wall across natural cavity in cliff; wall 2-3 courses high; evidence of recent fire in shelter; 6m ² . | Navajo? Historic | Shelter, storage | Avoid-flagged |
| 35-111 | CB/BC, PJ-S SL 5% S SWC 7280 | 2SS slab structures at base of cliff with petro- glyphs; no ceramics or lithics; Glyphs: animals, names; 500m ² . | Navajo 1860-1900? | Corrals | Avoid-flagged Dating based largely on rock art style. |

TABLE 1 (continued)

| SITE # | SITUATION | DESCRIPTION | CULTURE | FUNCTION | EVALUATION/REMARKS |
|--------|---------------------------------------|--|------------------------------------|---------------------|--|
| 35-112 | CB, PJ-P SLB 20% S TW 7300 | Large boulder with nearly horizontal crack sealed with SS boulders and logs; lacks pottery, lithics; no structures nearby; 8m ² . | Navajo Cabezon-Historic | Possible burial | Avoid-flagged Probably relates to 36-100 ca. 800' downstream |
| 35-113 | BC/MEB, PJ-P SLB 25% W SWC 7300 | 1 room SS slab structure in small overhang in upper cliff; wood from roof remains with collapsed wall; pottery, charcoal, human bones in fill; smoke stain on roof; ceramics: IC, EB, PC; 100m ² . | Anasazi PII | Dwelling or storage | Avoid-flagged |
| 35-114 | ST/BC, PJ-D SLB 40% N TW 7340 | Small wall remnant in natural SS cavity; no pottery; 6m ² . | Navajo? | Storage? | Avoid-flagged |
| 35-115 | MS/SDP, PJ-P SD 8% NE TW 7380 | Fire-reddened rocks, metate fragments, lithics, one-hand mano in stabilized dune area; 6000m ² . | Archaic | Campsite | Avoid-flagged This site and 26-104 are main Archaic camps in survey area. |
| 36-100 | MEB/BC, PJ-P SLB 20% S TW 7280 | Large Navajo settlement; Area A: 2 SS slab structures, a hogan & possible storage structure; corral with lamb pen. Area B: 3 storage bins built with stone & mortar under ledge; openings to front; some evidence of burning; large SS boulder smoothed by grinding; no modern artifacts; pottery: NU. | Navajo Cabezon Phase 1840-70 | Dwelling | Site recorded although outside survey area in order to assess other Navajo sites in area, & because of possible impact from vandals. |

Cultural Background

Previous Archeology

A summary of the archeology in the Grants vicinity prior to 1966 can be found in Ruppe's report on the Cebolleta Mesa survey (1966: 317). Chacra Mesa is clearly visible on the horizon to the north from San Mateo Mesa, and Pueblo Pintado (Bannister 1964: 190) on its northern slope (1964: Figure 2) is due north approximately 35 miles. Chaco Canyon National Monument lies about 10 miles west of Pueblo Pintado and approximately 42 miles from San Mateo Mesa. A summary of the archeology of the southern San Juan Basin can be found in the KinKletso Report (Vivian and Mathews 1964: 24-31). These two sources provide overall summaries of the regional archeology. Specialized studies include Hester's (1962) study of early Navajo culture, Keur's (1941) work on the early Navajos at Big Bead Mesa, the pioneer work on the San Jose Culture near Grants by Bryan and Toulouse (1943), and Irwin-William's (1973) study of the Archaic in the Arroyo Cuervo region approximately 40 miles to the east-southeast. Together these studies provide a framework for considering events in the San Mateo area.

Within the past two years, two surveys have been conducted in the San Mateo area in connection with uranium exploration. Prior to these two surveys, no formal archeological investigation had been carried out in the San Mateo vicinity. The larger of these surveys is that directed by Steve Koczan in Canada Las Vacas on the south side of San Mateo Mesa (1976). This survey resulted in the location of 62 sites which included 24 field houses, 7 pithouses, 22 miscellaneous sites (rock art, sherd areas, etc.) and 9 Navajo sites (Koczan and Doleman 1976: 5). While the majority of these sites consist of seasonally occupied field houses, habitations are suggested by the presence of pithouses. Although no large pueblo sites were found within the survey area (1976: 6), they note that several large pueblos are located south of the survey area. They observed that the relationships, if any, between the field houses of the survey area and the large sites need to be explored (1976: 6).

Although smaller in area (1600 acres), the survey of the Keradamex, Inc., Lease was conducted in an area of site density and cultural affiliation which helps to illuminate the local archeological picture (Allan et al. 1976). This survey area lies on the south side of the San Mateo Valley where a total of 128

sites were reported. These sites represent the Archaic (one site), Anasazi (141 sites or components), Navajo (two sites) and Spanish (five sites) cultures. The Archaic site consists of a badly eroded lithic scatter lacking visible hearths, with three one-hand manos and three projectile points, at least one of which is from the Armijo Phase (1976: 58-59).

The large number of Anasazi sites provide a reliable dating framework for the local area (1976: 60) and a significant amount of data recording habitation site types at different periods. The earliest period (A.D. 800-850) is represented by five sites or site components, generally of masonry based jacal structures of one or two rooms (1976: 61). The next period (A.D. 850-925) is represented by 12 sites or components indicating a slight population increase over the previous phase. Structures are masonry based jacal of two or three rooms (1976: 61). The period between A.D. 925 and 1000 is the beginning of a major population increase, as evidenced by the presence of 39 sites or components. Sites are characterized by masonry consisting of four to five rooms usually arranged in a linear block oriented north-south. Kivas are also present including one Great Kiva (1976: 62). A large village of up to 55 rooms in a tri-level structure was begun at this time and occupied until ca. A.D. 1075. Water control systems may have appeared at this time.

The greatest population density occurred between A.D. 1000 and 1050 (1976: 60, 63), when a total of 71 sites were occupied. A high degree of aggregation occurred at this time. Structures consist of predominantly linear room blocks and contain from six to 15 rooms, commonly associated with kivas (1976: 64). Water control devices were also used at this time.

A population decline began about A.D. 1050 that led to the abandonment of the area by 1075 (1976: 60, 64), and 13 sites were occupied. Village sites were similar to those in the years prior to this time. A minor reoccupation of the large village occurred between A.D. 1250 and 1270 (1976: 60, 64).

The two Navajo sites in this survey area date to the Gobernador Phase between A.D. 1738 and 1800 (1976: 66). One of these sites consists of a stone hogan base. Two historic sites were recorded that date between 1860 and 1890 (1976: 68). All are habitations.

Culture History and Summary

Paleo-Indian. All present indications are that the southern half of the San Juan Basin was peripheral to the Paleo-Indian occupation (Allan et al. 1976: Figure 1). Vivian and Mathews (1964: 28) do not mention this occupation, although Judge, et al. (1975: 96) mention that ". . . there is evidence of man's existence in the Chaco area as early as 10,000 years ago. . . ." To the south, Ruppe (1966: 324) notes that ". . . No Paleo-Indian sites are known, but it seems reasonable to postulate their presence. . . ." Paleo-Indian sites, thus, do not appear to be a significant part of the local archeology.

Archaic. The long period following the Paleo-Indian from ca. 5500 B.C. to A.D. 1-400 is termed Archaic. The specific tradition in northern New Mexico and vicinity has been labeled the "Oshara Tradition" by Irwin-Williams (1973). Archaic sites in the Arroyo Cuervo Region are numerous and varied, spanning the 5500-6000 year period, in an apparently unbroken occupation (Irwin-Williams 1973). The nature of this culture is well summarized by Irwin-Williams (1973). Vivian and Mathews mention the existence of "Non-Ceramic" sites in Chaco Canyon, especially on Chacra Mesa (1964: 28), and Judge et al. (1975: 96) document the presence of Archaic sites in the canyon. Ruppe (1966) reports only one Archaic site ("San Jose-Lobo") from the survey of Cebolleta Mesa, indicating that such sites are rare in that area. The sites documented by Bryan and Toulouse (1943) near Grants demonstrate that there was a hunter-gatherer population in the area beginning at least by ca. 3200 B.C. In addition, Allan et al. (1976: 58-59) have located a small Armijo Phase site near San Mateo.

Basketmaker II. Irwin-Williams (1973: 11) has demonstrated that the eastern Basketmaker II emerged out of the late Archaic during the En Medio Phase (ca. 800 B.C.-A.D. 400). In the Arroyo Cuervo Region, there are numerous Basketmaker II sites of the late En Medio Phase (1973: 12). Farther west, Basketmaker II sites are rare or absent. Vivian and Mathews (1964: 28) make no mention of Basketmaker II sites, while Judge, et al. (1975: 97) reports that a very limited number of Basketmaker II sites exist. Ruppe (1966: 324) implies by extending his San Jose-Lobo Period to A.D. 700 that there is a Basketmaker II occupation on Cebolleta Mesa; however, he does not actually describe Basketmaker II archeological sites and the extension of Archaic cultures to A.D. 700 is suspect. In the local area, neither of the two recent surveys report Basketmaker II sites, and both are in accord in stating that the earliest Anasazi occupation was ca. A.D. 800 (Allan, et al. 1976: 60; Koczan and Doleman 1976: 5).

Anasazi. The prehistoric pueblo occupation from Basketmaker II through Pueblo III is described as Anasazi. The period is summarized by Vivian and Mathews (1964) and Ruppe (1966). The recent surveys in the local area indicate that the San Mateo area was unoccupied during the Basketmaker II Period (ca. A.D. 700-800) but that, beginning around A.D. 800, Pueblo people began to settle the area (Allan et al. 1976: 60). From A.D. 850-925, there was a slight population increase with Kiathuthlana B/W and Red Mesa B/W ceramic types appearing on the sites (1976: 60). Population increased from A.D. 925-1000 with numerous sites having Red Mesa B/W, Gallup B/W and Esquevada B/W, with Red Mesa predominant. The greatest population density existed between A.D. 1000 and 1050. At least one large pueblo site was located within the Keradamex Lease survey area at this time. It should be noted that it was during the period ca. A.D. 1030-1050 that the greatest initial building occurred on the large villages in Chaco Canyon (Vivian and Mathews 1964; Bannister 1964). According to Allan et al. (1976: 60) their survey area was abandoned by A.D. 1075 or shortly after this cultural peak. Koczan's assessment is that his survey area was abandoned by ca. 1125 (Koczan and Doleman 1976: 5). A minor reoccupation of one site between 1250 and 1270 is recorded by Allan et al. (1976: 60) after which time the San Mateo area appears to have been unoccupied until the arrival of the Navajos.

Navajo. Hester (1962: Table XII) cites historic records which indicate that Navajo were living within the San Mateo Spring Grant in 1768. Other references demonstrate that the Navajo were in the San Mateo area in 1786 and 1805. The Cebolleta Mountain or Mesa Region lies from 15 to 20 miles east of San Mateo and a series of early Spanish records indicate that Navajo were in that area by ca. 1706. Relying upon these historical records, Hester concluded that the Navajo were established in the San Mateo area by 1700 (1962: Figure 25). That the Navajo occupation continued into the 19th century is demonstrated by Hester's summation that in 1800 ". . . the Cebolleta locality was populated heavily enough to force the abandonment of numerous land grants between the San Jose River and Rio Puerco. . . ." (1962: 84).

A summary of Hester's work and the two sites located on the Keradamex Lease demonstrate that the San Mateo area was one of the earliest localities occupied by the Navajo in the South-

west, and that the beginning of the occupation extends back with some degree of confidence to ca. 1730 and may have begun as early as 1700. On the other hand, the fate of the local Navajo in the 19th century is not clearly defined, even though Koczan and Doleman report the finding of Navajo sites from ca. 1900. The implication of the historical and archeological references so far is that there have been at least an intermittent occupation of this area by the Navajo from the early 18th century until after 1900. Shifts and inconsistencies in this region with respect to Navajo populations are to be expected since the area has been heavily contested by European and native groups.

Spanish. The Spanish occupation of San Mateo is summarized by Allan et al. (1976: 68). As noted above, the San Mateo Spring Grant was made in 1768 (Hester 1962: Table XII), and was one of several grants made between 1753 and 1768 in the area west of the Rio Puerco, in territory that was actually occupied by Navajo (1962: 23). Navajo resistance to Spanish settlement prevented the San Mateo Spring Grant from being occupied until 1801 when Domingo Baca settled there. By 1854, the Spanish were firmly settled in San Mateo with irrigation ditches, cultivated fields, and orchards (Allan et al. 1976: 69). From the time of the earliest settlement, it can be assumed that the Spanish maintained flocks of sheep, goats, cattle, and horses as they did elsewhere in New Mexico. There has apparently been no break in the Spanish occupation of San Mateo from 1801 until the present.

Koczan and Doleman (1976) do not mention Spanish Period sites in the Canada de las Vaca drainage where their survey was conducted, about 3.5 miles northwest of San Mateo. On the other hand, five Spanish Period sites were located on the Keradamex Lease (Allan et al. 1976: 68) about 2 miles west of the village of San Mateo. All five sites represent habitations that date between 1860 and 1890 (1976: 68).

Problems Related to the San Mateo Area

A consideration of the previous archeology of the San Mateo area reveals problems and questions for research which can be discussed according to cultural period.

1. Archaic. Ruppe (1966: 324-4) has proposed that the presence of Lobo projectile points on sites that also have Pueblo I ceramics demonstrates the continuation of the Archaic

to ca. A.D. 700 on Cebolleta Mesa. In assuming this position, he is agreeing with a suggestion made earlier by Bryan and Toulouse (1943). This indicates, according to Ruppe, that Archaic hunters and gatherers merged with Pueblo I agriculturalists; however, this position seems untenable in the light of work in the Arroyo Cuervo Region (Irwin-Williams 1973). In fact, the reverse appears to be the case since there is a lack of demonstrable Basketmaker II sites in the Grants area. In other words, rather than a continuum of Archaic cultural to ca. A.D. 700, there appears to be a gap of over 700 years during which time there is no evidence that the area was occupied (Allan et al., 1976; Koczan and Doleman 1976). Aside from calling attention to a break in historical continuities, the existence of a large area where there is a hiatus from the late Archaic (ca. 500 B.C.) until A.D. 700 (Ruppe 1966:325) or A.D. 800 (Allan et al., 1976: 60) raises the question of how uniform and extensive the regional shift from hunting and gathering to agriculture actually was.

2. Basketmaker III. Present indications are that, in addition to a lack of Basketmaker II sites in the San Mateo area, there are also few if any Basketmaker III sites. One might assume that Basketmaker III populations would have spread into every area that was ecologically suitable, and at least as ecologically adequate as the area around Shabik'eshchee in Chaco Canyon (Vivian and Mathews 1964) raises some interesting questions.

3. Pueblo. The lack of Pueblo habitations on these high mesas can be addressed in two ways: 1) what limiting factors (water, soil, length of growing season, rainfall, etc.) are responsible for the lack of Anasazi sites in these areas where past survey experience (Hays 1964) indicates that Anasazi sites are to be expected; and 2) why are these high mesas and canyons avoided during the peak Pueblo occupation period of the San Mateo area?

4. Navajo. The date of the arrival of the Navajo in the San Juan Basin and their settlement of this vast area remains unknown. The culture-historical question is critical to dealing with more involved questions of the origin of Navajo culture, and needs to be more fully explored.

In addition, there seems to be a general opinion that the San Mateo Navajo were defeated militarily by the American Army in the 1860's, probably involved in the Bosque Redondo imprisonment, and resettled on the Reservation along with other Navajo after their return from Bosque Redondo. While not discussed directly, this is inferred from general discussions of the Navajos during this period (Hester 1962:89-90) and from Underhill's (1953:110,131) comment that the only eastern Navajo (i.e., Navajo not on the Reservation) were settled at Canoncito, south-east of Mount Taylor. This is inconsistent with Koczan and Doleman's (1976:4) report that there are Navajo sites dating ca. 1900 along the

southern flanks of San Mateo Mesa. Were these a group of late Navajos who settled in the area, perhaps to work on the railroad (Underhill 1953:206), or are these Navajo who quietly lived in San Mateo at least intermittently throughout the 19th century?

Synthesis of Survey Results

Archeological remains of four cultural periods were found in the survey area: Archaic (ca. 300 B.C.-500 B.C.), Anasazi or prehistoric pueblo (ca. 925-1100 A.D.), Navajo (ca. 1750-1930 A.D.) and Spanish (ca. 1880-1950 A.D.). The dates given above apply only to archeological manifestations actually observed on the survey. In the following summary, the sites representative of each culture are discussed. The distribution of these sites is then considered in an effort to understand different settlement patterns. Finally, each culture is considered in general terms related to the cultural background of the San Mateo area.

Archaic

Site Types. The 17 Archaic sites consist of five isolated points (12-1, 12-101, 16-100, 18-105, and 35-24), eight campsites (9-102, 18-100, 23-1, 26-100, 26-104, 35-7, 35-8, and 35-115), three isolated metates (18-3, 18-101, and 35-23), and one hearth (35-105, see Figure 2) dating ca. 3200-1800 B.C. (Irwin-Williams 1973:7) or Armijo through early En Medio (16-100, 18-105, 35-24) dating 1800-500 B.C. (Irwin-Williams 1973:9,11). Of the eight campsites, only two have associated projectile points (9-102/Armijo and 23-1/San Jose). However, the presence of other artifacts such as slab or shallow basin metates, one-hand manos, lithics, and occasional features (hearths) and the lack of pottery or later artifacts all indicate that these sites are contemporary with the camps having points as well as the isolated points. Dating the sites could be accomplished through C-14 dating (charcoal is present at most sites) and/or obsidian hydration dating (obsidian is also present on most sites). The three isolated slab or basin metates are believed to date from the Archaic because of their proximity to Archaic camps and physical characteristics. Both 18-101 and 35-23 are in the proximity of Archaic camps (18-100 and 35-115 respectively) and can be regarded as outlying artifacts related to these camps. Only 18-3 is removed from other sites. An isolated hearth (35-105) is tentatively regarded as Archaic because of its associations with a one-hand mano.

Site Distribution and Settlement Patterns. At the heads of the side canyons (hereafter referred to as San Lucas 1, 2, 3 and 4) that drain eastward down the sloping mesas into San Lucas Arroyo (San Lucas 2, 3, and 4) are stabilized sand dunes in which the largest Archaic camps (35-115, 26-100, and 26-104) are located. These three sites are similarly situated in relation to adjacent mesas, valleys, and seasonal water in tinajas (water pockets) in the side canyons. A fourth dispersed Archaic camp may be represented by 35-7 and 35-8, which are also found on the sloping mesas that drain into San Lucas Arroyo and are related to San Lucas 1, the drainage with the largest tinajas. Thus, of the eight Archaic campsites, five of them (and by far the largest) are found related to drainages holding seasonal water, three of which are located in sand dunes at the heads of these drainages. The remaining three camps are small and found in other situations: 23-1 is located on a headland of eroded shale in the wide flat valley of Polvadera south and consists of an eroded hearth, a small lithic area, and a San Jose point. Site 9-102 is also on an elevated area in the wide flat valley of Rincon de la Gorda. This site consists of a lithic area in a blowout, a one-hand mano, and an Armijo point base, within the vicinity of an ash area that is thought to be related. The final camp (18-100) is a lithic area with a basin metate in a stabilized, south-facing dune in the middle of Gorda Mesa. It may be related to nearby 18-101.

The camps, in the dunes and close to the east flowing drainages in the mesas, were seasonally occupied at that time of year in which food resources were locally available. These camps were part of a series of camps located in various areas and occupied at other seasons of the year. From base camps such as these, prehistoric peoples would move out in small groups to hunt and gather elsewhere in the general vicinity.

The other places to which hunter-gatherers traveled are suggested by the isolated points, in some instances associated with stone tools (e.g., 16-100), that are found on the high mesas. Four of the five isolated points were found on the mesas in the pinyon-juniper woods. These can only be interpreted as evidence of hunting and, in the case of 16-100, perhaps butchering as well. The fifth isolated point (35-24), found near the San Lucas 1 camp (35-7), also represents hunting activities. In addition to the points on the high mesas, metates were found at 18-100 and 18-3. These inconspicuous sites (points, metates, etc.) are archeological proof of the utilization of the high mesa top environment by Archaic hunter-gatherers.

Regional Relationships. The projectile point types and other artifacts observed in the survey area are similar to those found in the Arroyo Cuervo Region (Irwin-Williams 1973). Irwin-Williams notes that archeological materials similar to those in the Arroyo Cuervo Region exist over a wide area of the northern Southwest and infers that these materials are related and part of a regional tradition characterized by the Arroyo Cuervo Region and termed the Oshara Tradition (Irwin-Williams 1973: 17).

The sites in the survey area when considered overall, and in relationship to other Archaic sites in the San Mateo Mesa area, provide a sparse but adequate resource base for Archaic studies. The finding of Archaic sites on a pinyon-juniper woodland mesa is in itself worthy of interest, since other surveys on wooded mesa tops in the Anasazi area (e.g., Hays 1964) have reported no Archaic sites, implying that Archaic people did not utilize the mesa top environments.

Anasazi

Site Types. There are 20 Anasazi sites or site components, of which six are structures or have some suggestion of structures (7-100, 8-1, 35-17, 35-100, 35-109, and 35-113); six are sherd areas (9-100, 12-100, 18-1, 26-4, 26-103, and 35-107); one is an isolated point (35-35); and seven are hearths or other isolated features (26-3, 26-6, 35-6, 35-10, 35-11, 35-21, and 35-101). Three of the sites with structures are in rockshelters (7-100, 35-100, and 35-113). Two of these (7-100 and 35-100) are small caves with masonry wall remnants and limited sherd areas. Both represent short term, probably seasonal use. Site 8-1 is a shelter beneath several large boulders. Charcoal, rubble, and the fill suggest a small structure may be present. The only evidence of a permanently occupied habitation in the survey area is 35-113, which is represented by a single masonry room remnant and a limited amount of occupational debris. Of the six sherd areas, none are large. The largest (9-100) measuring 1250m², is a low density drift of sherds in several blowout areas. No lithics or other suggestions of campsites are present. Sites 12-100, 18-1, 26-4, and 35-107 are small areas (25-200m²) consisting of sherds from several vessels, occasional lithics or burned bones, and appear to be short term campsites. Site 26-103 is a rock-shelter high on a talus slope. Sherds demonstrate use by the Anasazi, but this occupation was probably of a temporary seasonal nature. The single isolated projectile point (35-25) was the

long triangular, corner notched form found on Basketmaker II and Pueblo I sites. This is the only Pueblo Period point found in the survey area. Seven hearths or other exterior features are believed to be Anasazi on the basis of associated sherds or proximity to datable artifacts. Five of these are associated with Anasazi sherds (26-8, 26-6, 35-10, 35-21, and 35-101). Site 35-6 is dated by its similarity and proximity to 35-10 and 35-11 and by its proximity to the point 35-25. Slabs associated with some of these features (26-6 and 35-101) suggest that they may represent fireboxes similar to those found and excavated on Wetherill Mesa (Hays 1964: 114-18). Features such as these may have been used to process foods in the field prior to carrying them to habitation areas.

The ceramics on the Anasazi sites are similar to those on sites located by Allan et al. (1976) and Koczan and Doleman (1976). None of the Pueblo I types (Kiatuthlana Black-on-white and White Mound Black-on-white) were observed in the survey area. The main painted types found on these sites are Red Mesa Black-on-white (least common), Gallup Black-on-white (common), and Esquevada Black-on-white (common). McElmo Black-on-white was found at one site (7-100). The dating framework indicated by these types and their relative abundance is in accordance with both Allan et al. (1976: 60) and Koczan and Doleman (1976: 5) who found that the San Mateo area was unoccupied before A.D. 800, had a slight growth between A.D. 800 and 925, a rise in population after A.D. 925, a peak population between A.D. 1000 and 1050, and a decline that led to abandonment sometime between A.D. 1075 and 1125 (Allan et al. 1976: 60; Koczan and Doleman 1976: 5). Re-occupation of sites as observed in the Keradamex Lease area between A.D. 1250 and 1270 (Allan et al. 1976: 60) was not observed in the present survey area.

Site Distribution and Settlement Patterns. With three exceptions (7-100, 12-100, and 18-1, Table 1), there are no Anasazi sites on the high mesas or anywhere in the survey area west of Rincon de la Gorda Valley. All three of these are either earlier (12-100 and 18-1) or later (7-100) than the period of peak occupation on the San Mateo area (A.D. 1000-1050) as documented by Allan et al. (1976: 60). The lack of Anasazi sites on these pinyon-juniper covered mesas is one of the most interesting findings of the survey.

The remainder of the Anasazi sites are found in Rincon de la Gorda Valley (8-1 and 9-100) and the eastern section. More specifically, the eastern section sites are found in the drainage basin of El Derrame Arroyo and on the sloping mesa drained by San Lucas 1. In most cases, these sites can be dated to the period ca. A.D. 1000-1050 on the basis of a predominance of Gallup Black-on-white and Esquevada Black-on-white. Site 9-100 (a sherd area on an open slope) may date slightly later than the others: ca. A.D. 1050-1125. Temporally, they thus correlate with the period of major occupation south of San Mateo and initially must be regarded as extensions of settlements centered in that area.

A cluster of small hearths and sherd areas on a bench north of El Derrame Arroyo (26-3, 26-4, 26-6, and 35-21) represent seasonal use, probably related to the growing of crops on the sandy loam soil of the bench.

The only substantial structure in the survey area (35-113) is a collapsed single room in a rockshelter overlooking lower Derrame Canyon. The occupants of this site would have had access to water in the tinajas of San Lucas 2 as well as to stabilized sand dunes on the mesa tops for growing of limited crops. Even in this case, the occupation may have been seasonal, given the large villages only a few miles to the southwest (Allan et al. 1976: 62).

The majority of the sites are in the drainage basin of San Lucas 1. There are two small masonry structures, one at 35-100 and the other across the canyon at 35-17. Close to them are a slab-lined hearth (35-101--almost certainly a component of nearby 35-100) and a group of weathered hearths (35-11). All of these sites are no more than 150m from the large tinajas in the canyon near 35-100. The other sites are a single masonry room (35-109), only questionably Anasazi, based on one sherd; a sherd area (35-107) higher on the mesa slope, and two hearth areas (35-6 and 35-10) lower in the canyon. The isolated projectile point (35-25) is close to 35-11 and thought to be related to that hearth site. While there is agriculturally usable land in the San Lucas 1 basin, the primary settlement determinant would appear to be proximity to the water in the tinajas.

Regional Relationships. The Anasazi sites in the survey area are temporally similar to those in the two local surveys and apparently, since the area was not occupied before A.D. 800, there are no Basketmaker II sites, and the problem of the hiatus between the Archaic and Anasazi agriculturalists remains. The Anasazi occupation of the survey area does not begin before ca. A.D. 925, and that occupation seems to be confined to the high mesas; it was also very limited, supporting the previous observation that occupation of the San Mateo area before A.D. 950 was minor and marginal (Allan et al. 1976: 60). Furthermore, all the sites in the eastern section would appear to represent farming and/or gathering activities related to the settlements south of San Mateo Mesa. There is not sufficient evidence to indicate that Anasazis were inhabiting the survey area on a year-round basis.

The findings on this survey demonstrate that the people in the San Mateo Valley did not simply move to higher elevations after ca. A.D. 1050-1100 as Bannister (1964: 201) suggests may have occurred in the Chaco area. When the settlement systems collapsed, sometime ca. A.D. 1100, these people appear to have left the San Mateo area entirely.

Navajo

Site Types. The Navajo sites or components dominate the archeological record of the survey area. These sites or components consist of hogans (8-5, 12-102, 12-106, 17-103, 18-2, 23-100, 26-105, 26-106, 26-107, 35-13, 35-15, 35-18, 35-103, 35-108, and 36-100); sweatlodges (1-1, 1-2, 1-101, 6-3, 8-2, 12-4, 12-100, and 12-104); log and brush shelters (1-2, 1-3, 1-100, 6-1, 6-4, 6-5, 6-100, 12-2, and 12-105); masonry structures (sheep pens?) (8-101, 8-102, 8-103, 17-2, 17-4, 26-101, 26-102, 26-108, 35-104, and 35-111); walled cists (26-103, 35-110, and 35-114); crevice burial (35-112); sherd area (35-5); possible dance ground (35-14); possible recent hogans (9-1 and 8-104); and trails (7-101 and 17-104). While some of the 52 archeological manifestations can be attributed to the Navajo, the cultural affiliation of some of the others is vague and cannot be clearly differentiated from similar late 19th and early 20th century Spanish sites.

The primary archeological evidence of the Navajo occupation consists of the 15 hogan sites. In many cases, these hogans are associated with Navajo Utility pottery, 18th and 19th

century Pueblo pottery, or other artifactual evidence that indicates that the sites are Navajo. In all cases, the hogans at these 15 sites are typical of those found in archeological contexts elsewhere (Hester 1962: 40). The hogans in the survey area can all be placed within Hester's "stone walled" and "cribbed log" types (1962: 40). Stone walled hogans are common at Big Bend Mesa and on Chacra Mesa (1962: 40, Figure 12; Bannister 1964). Hester reports that the stone walled hogans had cribbed log or forked stick roofs and many of the San Mateo stone walled hogans have cribbed log roofing material still standing or collapsed into the hogan interiors. Stone walled hogans are characteristic of the Cabezon Phase (ca. A.D. 1800-1863) (Hester 1962: 65), but were also present in the later Gobernador Phase. Hester states that ". . . The stone-walled hogan . . . became popular . . . toward the end of the 1700's . . ." (1962: 63). The slab-lined bin inside a Gobernador Phase hogan at 35-103 closely resembles those discussed and the one illustrated by Hester (1962: 46, Figure 20). Slab-lined meal bins are characteristic of both the Gobernador and Cabezon Phases (1962: Tables VII and VIII). Hester describes the cribbed log hogans as follows:

The construction consists of the horizontal placement of logs in a polygonal form to head height as walls . . . Above this point the logs are stepped inward to form a corbeled roof with a central smoke hole. The entire structure is then covered with earth (1962: 40).

These wooden hogans are present at 8-5, 12-102, 12-106, and 17-103. Cribbed log hogans "are rare archeologically" (1962: 40) and are presumably a later architectural form (i.e., post-1860). They are unquestionably present after 1863 (1962: 67) and may primarily date from the period after 1880. The distribution of these two types in the survey area suggests that the stone walled type is older than the cribbed log type. The stone walled hogans are, with one exception (18-2), located in the eastern section (Sections 23, 26, and 35) where the oldest Navajo sites (35-103, 36-100) are found. On the other hand, the completely wooden, cribbed log hogans are not found in the eastern section, but are found only on the high mesas (Gorda Mesa and Mulatto Mesa) west of Rincon de la Gorda. However, the cribbed log hogan at 17-103 which is associated with abundant Navajo Utility and Pueblo trade pottery and an obsidian arrowhead, has no modern trade goods and is unquestionably older than the stone walled hogans at 35-15 and 35-108 which have trade goods (glass, metal, etc.) and no Indian pottery.

In the Southwest, sweatlodges are almost exclusively Navajo in origin. Eight sweatlodges are present in the survey area. With one exception (8-2 in Rincon de la Gorda Valley), they are all located in the northwestern portion of the survey area on Mulatto Mesa (1-1, 1-2, 1-101, 6-3, 12-4, and 12-104) or in Mulatto Canyon (12-100). With one exception (12-100), the sweatlodges are still standing and those on Mulatto Mesa appear to relate to the ca. 1910-1930 settlement centered around 12-106. In contrast, the complete lack of recognizable sweatlodges in the eastern portion of the survey area correlates with the general early date (18th and 19th century) of the Navajo sites in that area (35-15 and 35-108 are exceptions). In other words, the evidence derived from the distribution suggests that sweatlodges were not used in the survey area before ca. 1900-1910. That this is a local phenomenon is indicated by Hester's report that they were present in the Gobernador Phase (1962: Table VII).

A series of nine brush and log enclosures and lean-tos on Mulatto Mesa are believed to be Navajo on the basis of their form (several are five or six sided and look like crude hogans), associated artifacts (the same type of cans, etc., that occur at 12-106), and their proximity to the hogans at 12-102 and 12-106. The logs and brush incorporated into these structures are also weathered to about the same degree as the logs and brush at the hogan sites. In addition, one of these sites (1-2) has an associated sweatlodge. Hester reports that brush and log lean-tos are characteristic Gobernador and Cabezon Phase architectural forms (1962: Table VII and VIII). Presumably, the lean-tos are temporary shelters and the enclosures are sheep pens. Considering that many of the enclosures have charcoal associated with them and other indications of fire inside them, it is of interest that the Spanish sheepherders in the Navajo Reservoir District "... built fires and camped in the shelter with the sheep ..." (Dittert et al. 1961: 52). The Navajo may have done the same thing. A similar five-sided brush shelter with a firepit in the center was found on Wetherill Mesa and is attributed to the Navajo (Hays 1964: 122). Site 12-105 is dated to ca. 1925 by a datable KC brand baking powder can.

Ten circular to oval masonry structures are in Rincon de la Gorda Valley (8-101, 8-102, 8-103, 17-2, 17-4) and in the canyons of the east section (26-101, 26-102, 26-108, 35-104, and 35-111). These structures measure from about 3m to 7m in diameter with only low walls remaining. None of them have roof logs present, they generally lack artifacts, and they may be comparable to the "single-oval masonry structures" mentioned by Vivian and Mathews (1964: 31). It is suggested that they

are functional equivalents of the brush and log sheep camps on Mulatto Mesa, and represent temporary enclosures for sheep. Some of them, such as 17-2, may represent eroded stone wall hogans, an interpretation strengthened by the sweatlodge at nearby 8-2. One site (35-111) is built at the base of a cliff in a slight overhang and is associated with a group of Navajo petroglyphs and pictographs that, on a stylistic basis, would date the site to the late 19th century (ca. 1860-1900). There seems little question that sheep were enclosed at the site, while eroded structures may have been dwellings--at least of a temporary nature.

Hester reports that caches made by walling up natural rock cavities are a common Navajo architectural form (1962: 46). Three of these features were located (26-103, 35-110, and 35-114). Site 26-103 is at the base of a 20-foot cliff below a high mesa rim. The cavity is 2m wide by 1.5m deep and 1m high. About half of the slab and mud mortar wall is present, although there is no obvious doorway, usually characteristic according to Hester (1962: 46). Immediately adjacent to the walled cache is a large overhang with a wide floor on which numerous Navajo Utility sherds were found. There is no question that there is a Navajo component to the site, although a few Anasazi sherds were present. Given the similarity of the cache to those reported by Hester, and the Navajo component in the rockshelter, there seems little reason to doubt that the feature is Navajo. There are no diagnostic artifacts associated with 35-110 and 35-114, but their similarity to the cache at 26-103 makes it very likely that they too are Navajo.

Hester states that the use of these walled caches was for storage and burial (1962: 42-60). The distance of 35-110 and 35-114 from any Navajo occupation site argues against their being storage caches; especially when the excellent storage bins directly related to 36-100 are considered. The suggestion that the walled cists were used for burial is not inconsistent with the spatial proximity of 35-114 to 35-112, which is believed to be an undisturbed Navajo crevice burial. Hester notes that crevice burials are a characteristic of the Cabezon Phase (1962: Table VIII). He states that a crevice burial " . . . involved placing the body in a rock crevice and covering it with sand, timbers, and rock . . ." (1962: 60). Site 35-112 is a rock crevice in a large boulder, sufficient in size for this

purpose (2m long by 30cm high). The crevice has been sealed with boulders and rocks. While there are no artifacts in association, the similarity to the burials reported by Hester and the proximity to the large Navajo site 36-100 (about 400m down the canyon) indicate that this is a Navajo crevice burial and that it probably represents a burial related to the settlement at 36-100. The implication is that 35-114 across the narrow side canyon has a similar function.

Navajo sherds were found in the general vicinity of the occupation areas (hogans, etc.), with the exception that at 35-5, on the crest of a mesa, a single large Navajo Utility olla was found broken into 50 or more pieces.

Hester (1962: 46) reports that dance grounds, specially prepared ceremonial areas, are a characteristic of the Cabezón Phase (1962: Table VIII). A single site (35-14) may represent such a ceremonial ground. At least four hearths are associated with a long, shallow trench (17m x 1.5m) which is lined with fire-cracked and reddened rocks. Navajo Utility sherds indicate that it is Navajo in origin, although a few Anasazi sherds are also present. This site is close to three recent (ca. 1910-1930?) Navajo hogan sites (35-13, 35-15, and 35-108) and would appear to be related to them.

There are several structures that may be Navajo, but lack diagnostic Navajo artifacts (9-2 and 18-104). Site 9-1 is quite recent (ca. 1920-1940) with cans, glass, etc. The slab-lined east entrance of the structure suggests that it is a Navajo dwelling; perhaps a brush covered ramada type habitation. If it is Navajo, it would help to determine the cultural affiliation of the numerous corrals and brush shelters in the vicinity. It would appear that any Navajos in this valley around 1920 would have been working for Spanish or Anglo ranchers. Site 18-104 consists of two masonry structures with related glass and tin cans on Gorda Mesa next to site 18-2 (which is definitely a Navajo hogan). The site may represent a reoccupation of the location by Navajo who did not build a distinct hogan; on the other hand, it could also represent a Spanish structure even though there are no other masonry Spanish structures on these mesas.

Two trails were given site numbers (7-101 and 17-104). Site 7-101 is a well defined horse and foot trail that is marked at the top by a rock cairn. It provides the only good access from Mulatto Mesa into Mulatto Canyon. When one considers that the only permanent or semi-permanent water supply available to the inhabitants of Mulatto Mesa is in the bottom of Mulatto Canyon, the trail assumes considerable importance in defining the Navajo settlement patterns. The second trail, 17-104, connects the high, dry top of Gorda Mesa with Rincon de la Gorda Valley. Since the east side of this mesa is a sheer cliff, 200-300 feet in height, and the only water appears to have been in the valley some 800 feet below, the trail is essential in explaining the subsistence patterns at the Navajo sites near the trailhead (8-5 and 17-103). While both of these trails are well used today, these natural breaks in the topography have been there for thousands of years and were undoubtedly also used by the Anasazi and Archaic hunter-gatherers before the Navajo.

Site Distributions and Settlement Patterns. Navajo sites occur throughout the survey area, but are primarily found in the canyons draining the sloping mesas of the east section, along the eastern edge of Rincon de la Gorda Valley, on the top of Gorda Mesa, and on Mulatto Mesa. The distribution of these sites is patterned and reflects the dispersion of specialized activities within several discrete settlement systems, as well as temporal differences between these settlements. In general, there seems to be a movement from east to west over the period represented (ca. 1750-1930), which correlates with the expansion of Spanish and Anglo activities and the gradual movement of the Navajos into the higher, more inaccessible mesas west of Rincon de la Gorda Valley.

The oldest Navajo site in the survey area is 35-103, which consists of two stone walled hogan remnants and a third masonry structure. One of the hogans has a slab-bin inside of it. There is, in addition, an extensive trash area with a considerable amount of charcoal, lithics, and pottery below the hogans. Several pieces of Awatobi Polychrome suggest a date of ca. 1750 for this site, if not earlier (Dittert et al., 1961:155). The many small pieces of Navajo cooking vessels lack the diagnostic fillets representative of Navajo Utility ware. Thus, it is not certain whether the sherds are Navajo

Utility or the earlier Dineta Scored (Hester 1962: 63). A complete arrowhead in the trash area is of the triangular side notched type that has been found elsewhere still hafted to an 18th century Navajo arrow (Hester 1962: 108). The site is located near the tinajas in San Lucas 1, on a bench, and oriented toward the south. The eroded masonry structure at nearby 35-104 is thought to be a related lamb pen. Other than this one small settlement, there are no other definite indications of Navajo occupation in the survey area before 1800. While some of the undated Navajo sites in the eastern section (35-110, 36-101, etc.) could date to the 18th century, it is virtually certain that none of the Navajo sites west of Rincon de la Gorda Valley are of this age. The site supports the data presented in historical records that Navajos were in the San Mateo area in the early 18th century. In addition, two 18th century Navajo sites were reported to be located south of San Mateo Mesa (Allan et al. 1976: 66).

The Navajo were living in the eastern section during the early 19th century, as proven by the presence of 36-100 in the canyon of San Lucas 2. This location is secluded and hidden from San Lucas Valley to the east, and water is present in tinajas in the canyon. The site consists of a stone walled hogan with remnants of the cribbed log roof inside, several smaller stone walled and cribbed roof structures, a corral with a lamb pen, three masonry storage bins in a rockshelter and a trash area. Navajo Utility sherds are common in the trash area and in the rockshelter; the sherds have fillets and scoring near the rims and are definitely Navajo Utility ware. No other pottery, or trade goods (glass, metal, etc.) were found. The presence of Navajo Utility ware implies a date for the site of post 1800, while the lack of trade goods implies a date pre- 1863 (Hester 1962: 65-7). This site, then, appears to be one of the best Cabezón Phase habitation sites yet recorded outside of the Big Bend Mesa locality (Hester 1962:65).

It has already been suggested that sites 35-112 and 35-114 up the canyon to the west may be related to 36-100. The presence of the habitation at 36-100 aids in interpreting the stone walled structures in San Lucas 3 (26-101 and 26-102), which may be temporary sheep pens and/or camps related to 36-100. This interpretation would date these sites to the early 19th century.

A second settlement, which on the basis of its similarity to 36-100 may also date to the early 19th century, consists of the cluster of hogans that were assigned the numbers 26-105, 26-106, and 26-107. These stone walled hogans with remains of cribbed log roofs are associated with a corral and possible lamb pens at 26-107, and are architecturally very similar to 36-100. These three sites lack surficial artifacts. As with 36-100, the lack of trade goods implies a date prior to 1863-1870, which seems reasonable given the eroded state of the roof remnants. On the other hand, the logs are weathered to about the same degree as those at 36-100, and their presence implies that the sites are not as old as the 18th century site of 35-103. It appears that there were two contemporaneous Navajo settlements in these canyons between ca. 1800 and 1870, and that the remainder of the smaller sites in the area (e.g., 26-108, 23-100) can be understood as components of settlements centered around these two habitations. The abandonment of the Navajo settlements discussed above may well correlate with activities related to the Navajo wars with the American Army which led to the removal of many Navajos to Bosque Redondo in 1863 (Hester 1962: 65; Underhill 1953).

Site 17-103, which consists of a single hogan with related features (pile of burned rock, trash areas, etc.) is close to the sheer cliff of Gorda Mesa and overlooks the valley some 800 feet below; it is also close to the trail (17-104) which provides the only access to this high, dry mesa. This location may be a reflection of the state of affairs noted by Hester for the period just before 1863: ". . . As these military encounters increased in intensity, the Navajos were forced into retreat and hiding . . ." (1962: 92). The situation of 17-103 may reflect the pre-1863 conditions Hester is describing and, in general, the unsettled time of the mid-nineteenth century. The cribbed log hogan construction suggests that the site is later than those in the eastern section. In addition, there are numerous pieces of Zuni or Acoma trade pottery, not found on the sites in the eastern section, there are no trade items present, and the presence of an obsidian arrowhead implies that traditional tools were still being used.

Two other Navajo sites are located on Gorda Mesa. Although they lack artifacts, they appear to be slightly later than 18-103. The nearest is 18-5, on the same edge of the mesa about 1/2 mile north. Unlike 18-103 which lacks apparent corrals, 18-5 consists of corrals, lamb pens (or storage bins) and related small structures. The large hogan and all other buildings are constructed of logs. In the middle of the mesa is 18-2, a series of three masonry structures, at least two of which are hogans. The use of masonry implies that the site is older and probably representative of a mid-nineteenth century retreat onto this high, dry mesa top.

In summary, there are three Navajo habitations on Gorda Mesa, all of which lack trade items (cans, glass, etc.) which were commonly associated with the Navajo sites on Mulatto Mesa. This situation implies a temporal difference between the sites on the two mesas, indicating that the Navajo occupation of Gorda Mesa terminated before the appearance of numerous trade goods in the late 19th century. Another difference between the two mesas, that perhaps is also indicative of a temporal difference, is the complete lack of temporary log and brush shelters and of sweatlodges on Gorda Mesa, both of which were common on Mulatto Mesa. It is suggested that the sites on this high, dry mesa represent a withdrawal into a marginal area either during the time of the wars with the American Army (1846-64) or after the return from Bosque Redondo in 1868.

The Navajo sites on Mulatto Mesa appear to be the result of a single settlement centered around the cluster of four cribbed log hogans at 12-106. A related or satellite dwelling is represented by the cribbed log hogan at 12-102. Aside from these two hogan sites, all of the other Navajo sites on Mulatto Mesa are either sweatlodges or temporary log and brush sheep camps. In point of fact, aside from two isolated San Jose projectile points (12-1 and 12-101) and two recent masonry hearths (Spanish?) (6-2 and 12-3), all of the archeological sites on Mulatto Mesa are Navajo and appear to belong to this single settlement. All of these structures are wood and appear to be weathered to the same degree. Most of the sheep camps, and the hogans, are associated with tin cans, glass bottles, etc., and all appear to be from the same approximate time. A

KC brand baking powder can lid at 12-105 provides a date of 1925 for the site, and this is taken as a reference date for the whole settlement. An estimated dating framework for the whole settlement is between 1910 and 1930.

There are six sweatlodges on Mulatto Mesa. All of them are dispersed around the main hogan site (12-106). As Hester (1962: 45) notes, sweatlodges are generally removed some distance from the habitation areas.

The temporary sheep camps and lean-tos are similarly dispersed around the main site, and none of them is more than a mile and a quarter from the hogans. They would appear to be located to allow grazing in several different parts of the mesa.

This series of sites provides an unparalleled opportunity to study a Navajo settlement system from the archeological record inasmuch as it is bounded by clearly defined topographic limits (the edges of the mesa) and is apparently not confused by the existence of earlier or later sites.

The settlement of Mulatto Mesa may be a later settlement of the same people who occupied Gorda Mesa. Regardless of this question, this settlement represents the final occupation in the survey area by the Navajos who by the early 20th century had been pushed into this extremely inaccessible mesa by the encroachment of Europeans. After about 1930, this settlement was abandoned and any later Navajo sites that may be present (such as 9-1 and the late settlement in San Lucas 1 Canyon consisting of 35-13, 35-15 and 35-108) almost certainly represent the activities of Navajos who were working in the context of a cash economy as herdsman of Anglo or Spanish ranchers.

Regional Relationships. In general, the Navajo sites in the survey area corroborate the historical summary discussed earlier. However, previous historical studies (Underhill 1953) and archeological work did not suggest that there would be such a large occupation of the area during the 19th century. These sites are likely to provide a chapter in early Navajo history that has heretofore been neglected. The 19th century Navajo sites described above provide a link between the previously

demonstrated 18th century Navajo occupation of the San Mateo area and the sites that Koczan and Doleman dated to ca. 1900, and demonstrate that these late sites do not merely represent a reoccupation of the area but are part of an occupation that persisted, at least intermittently, throughout the 19th century. In addition, the relationship of the sites located by Koczan and Doleman to those on Mulatto Mesa will have to be determined.

It was discussed earlier that one of the significant problems in regard to Navajo archeology is the question of the early settlement of the San Juan Basin. No evidence was found on this survey of Navajo sites that would date earlier than the first half of the 18th century.

Spanish

Site Types. Thirty-eight sites have been provisionally attributed to the Spanish Period. With one minor exception (9-3), these sites all appear to derive from seasonal herding activities and represent extensions of the settlement centered at the village of San Mateo. These sites can be classified as brush shelters and tent camps, with or without corrals (7-1, 8-3, 8-100, 9-4, 9-101, 12-103, 15-1, 15-2, 16-2, 16-3, 17-3, 17-101, and 18-103); camps with simple rock walls (8-4, 17-1, 26-1, and 35-3); rockshelter camp (35-2); cairns (8-104, 8-105, 16-4, 26-7, 35-19, 35-20, 35-22, and 35-106); masonry wall hearths (6-2, 6-101, 9-2, 12-3, 16-1, 26-5, 35-9, and 35-12); and a house foundation (9-3).

The brush shelters are fairly similar to each other, consisting of circles or arcs of branches and sometimes slabs around a hearth. Logs are generally not used, as is the case with the Navajo shelters on Mulatto Mesa. The tent camps consist of several logs which indicate the edge of tents and upright support posts. Both kinds of camps are associated with lard buckets, coffee pots, tobacco cans, glass bottles, etc., all of which indicate a fairly long-term occupation. Most of the tent camps are situated on north-facing slopes which implies that they were occupied during the hot summer months. Several camps are near brush corrals. The majority of these camps are found in Rincon de la Gorda Valley and around the base of Banco Isidro. The dates of the occupation are suggested by a petroglyph at 17-100 which reads "Juan Ortega 1913" and an upright, incised sandstone slab at 17-3 which is inscribed Emilio Garcia and Danil' Martinez with several dates between 1916 and 1922. It would appear that the bulk of these sites date to the first quarter of the 20th century.

Another type of site consists of seasonal camps with simple rock walls. These are the only Spanish camps present in El Derrame Canyon, where brush shelters were not found. The date of the occupation of the El Derrame camps is suggested by a series of petroglyphs at 35-3 which consist of dates ranging from 1881 to 1948. The 1881 date may imply that the Spanish were seasonally utilizing this canyon some years before they moved on to the northwest into Rincon de la Gorda Valley. As discussed above, this probably relates to the presence of Navajo in this valley or on the mesa to the west in the late 1880's.

Several well made cairns and other rock piles are present in the vicinity of the Spanish sites, especially in El Derrame Canyon, and may represent grazing area markers. The high cairn at 35-20, in particular, is close to a group of Spanish camps.

Eight hearths of a distinct form were located, and they have been attributed to the Spanish. These generally consist of an arc of stones, fire reddened on the inside, piled to a height of about 1m and 2-3m in length. Associated tin cans, and in one case (12-2) a metal serving spoon, demonstrate that they are of recent date. These sites may represent sheep herders' camps, but their separation from other camps and lack of associated corrals suggest that they are hunters' camps.

A single house foundation (9-3) in Rincon de la Gorda Valley represents the only recent habitation in the survey area. It is close to a modern well, and only 1/2 mile south of a ranch in the same valley.

Site Distribution and Settlement Patterns. The Spanish sites are, with few exceptions, confined to the wide valley around the base of Banco Isidro and El Derrame Canyon. The sites are generally located in the eroded clay hills on the margins of the valleys, a location not often selected by other cultural groups. The main determinant of site location appears to be proximity to grazing areas, with a secondary concern for firewood and shade trees. There is one Spanish sheep camp on the high mesas west of Rincon de la Gorda (18-103) and one in Mulatto Canyon (17-1). The absence of sites on Mulatto Mesa can probably be attributed to the presence of Navajo on that mesa during the 1910-1930 period. The abandonment of these camps in the 1940's undoubtedly relates to changes in ranching practices that revolved around the use of vehicles and elimination of summer camps for tending animals.

Regional Relationships. The Spanish sites in the survey area all derive from a period approximately between 1880 and 1950. Almost without exception, these sites are sheep camps that reflect the period when seasonal summer camps were stationed near outlying pastures. There are a few exceptions to this pattern, such as the stone wall hearths, which may be hunting camps.

The Spanish homesteader occupation of the Navajo Reservoir District (Dittert et al. 1961: 250-59) has been previously described and placed in its overall regional perspective. Events in the San Mateo area in some respects parallel those that occurred at the northern edge of the San Juan Basin. While settlement of San Mateo dates to 1801, and the Navajo Reservoir District was not settled until about 1870, there is reason to believe that the Spanish did not extend their activities very far beyond the immediate San Mateo Valley until after the Navajo had been conquered militarily and reservations established. As in the north, the Spanish settlers were confined by hostile Indians on the mesas.

As in the northern San Juan Basin (Dittert et al. 1961: 257), major changes in the Spanish way of life in the vicinity were related to the construction of the railroad and the subsequent involvement in the national cash economy. The Santa Fe Railroad was constructed through Grants in the early 1880's (Underhill 1953) and it was in the years after 1880 that the Spanish expanded to the north side of San Mateo Mesa and began grazing sheep in areas that had been Navajo land prior to that time. It has been suggested that this expansion of Spanish herdsmen into this area was at least partly responsible for the gradual retreat of the Navajos onto Mulatto Mesa which, judging by the distribution of sites in the 18th and early 19th century, had previously been regarded by the Navajo as too marginal for habitation. There seems to be little doubt that for 20 or 30 years both Spanish and Navajo coexisted in the survey area, with the Spanish (and perhaps hired Navajo herdsmen) occupying Rincon de la Gorda Valley, and the Navajo occupying Mulatto Mesa. The Spanish continue to graze cattle in the survey area under Forest Service permits. This activity constitutes the main economic activity on the mesas.

Indeterminate Culture

While the cultural affiliations of most of the sites can be reasonably well determined, six sites of indeterminate origin remain. These consist of four hearth areas lacking diagnostic artifacts (26-7, 35-16, 35-102, and 18-102) and two isolated artifact sites (26-2 and 35-4). Site 35-102 is an area 30m² on a gentle slope in the San Lucas 1 drainage that contains large chunks of charcoal, numerous pieces of tan-gray chert and burned bones. The presence

of the lithics and lack of tin cans indicate that it is not Spanish. Site 18-102 is a slab fireplace near the edge of Gorda Mesa. There is charcoal present as well as a piece of burned log. The feature is about 80cm in diameter. The isolated artifacts are both in El Derrame Canyon. Site 26-2 is a cluster of three large pieces of chert, one of which is a prepared biface. Site 35-4 is a shaped sandstone slab 60cm in diameter and 2.5cm thick, located in a dune blowout.



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PAPER NUMBER TWENTY-FOUR

EXCAVATIONS AT THE MAYHILL ADMINISTRATIVE SITE:
IMPLICATIONS FOR JORNADA MOGOLLON SOCIAL ORGANIZATION

By

Joseph A. Tainter

Introduction

The Mayhill Administrative Site is a prehistoric archeological site of the Jornada Mogollon, located in part on lands of the Mayhill District, Lincoln National Forest, New Mexico. The site is situated in the pinyon-juniper vegetation zone on a terrace west of the Rio Penasco, about 1- 1/2 miles south of the Mayhill District Ranger Station. The Mayhill Administrative Site has been assigned inventory number AR 03-08-04-05 in the files of the Lincoln National Forest, and site number LA 505 in the files of the Museum of New Mexico Laboratory of Anthropology.

From the standpoint of archeological integrity, the site has been substantially disturbed. The location has been used as an administrative site by the Forest Service since the early years of the 20th century. During World War II, the location served as a prisoner-of-war camp. As might be expected, there has been substantial disturbance from building, and from placement of underground pipelines. The surface of the site displays a scatter of pottery and lithics, although, disturbance is everywhere evident. Under the ground surface, however, intact features apparently remain, including a probable cemetery.

During the week of June 4, 1978, the use of a backhoe to excavate a trench for an electric line disturbed the remains of at least three prehistoric burials and four individuals. The backhoe trenches were left open after this incident occurred, and on June 13 and 14, 1978, excavations were conducted to remove these burials and to recover as much of the disturbed bone as possible. I am grateful for assistance in this excavation given by Charlene Ritter of the Mayhill District, by several members of the District fire crew, by Jerry Trout of the Guadalupe District, and most especially by my wife, Bonnie. Evelyn Leonard, wife of the District Ranger, showed us welcome hospitality as we excavated virtually her front yard. The osteological analysis was performed by Charles M. Sheldon of the University of New Mexico.

Archeological Background

The Mayhill Administrative Site lies within the area of the Jornada Branch of the Mogollon, as defined by Lehmer (1948). For the ceramic periods, which are of interest to this study, Lehmer recognized three temporal phases. Lehmer additionally recognized

northern and southern variants in the Tularosa Basin area. Lehmer's phases, along with the best currently available dates for these, are summarized below.

| <u>Southern Variant</u> | <u>Temporal Range</u> | <u>Northern Variant</u> |
|-------------------------|-----------------------|-------------------------|
| Mesilla Phase | 450-1100 A.D. | Capitan Phase |
| Dona Ana Phase | 1100-1200 A.D. | Three Rivers Phase |
| El Paso Phase | 1200-1400 A.D. | San Andres Phase |

Major behavioral characteristics of the Mesilla-Capitan Phases include pithouse architecture and pottery. A sedentary population may be postulated, and a shift to reliance on agriculture may have occurred at this time.

The Dona Ana-Three Rivers Phases are enigmatic and mark a period of cultural transformation. Pueblo-type architecture makes an appearance, although pithouse dwellings continued to be used. This change to surface architecture suggests major changes in Jornada Mogollon social organization and population density. Pueblo-type dwellings are inherently more expandable than pithouses. A shift to surface construction would be expected in a situation in which social units were expanding in size, thus, necessitating the continual accretion of architectural units.

In the El Paso-San Andres Phases, pueblo-type architecture became dominant. Some of the pueblos in the Sierra Blanca region ranged in size up to several hundred rooms (Kelley 1966: 69). For reasons which are poorly understood, the area was depopulated by 1350 or 1400 A.D., thus, bringing an end to the Jornada sequence.

The major research in the Mayhill area has been conducted by Kelley (1966), who reports and synthesizes excavations conducted by herself and by others. Geographically and temporally, Kelley includes the Mayhill region within the boundaries of her Glencoe Phase (not an exclusively temporal phase) (1966: 59-65).

The sites along the Rio Penasco (including the Mayhill Administrative Site) are located in the pinyon-juniper belt of the Upper Sonoran zone. A few sites occur at lower elevations in the grassland zone, and a few slightly higher in the ponderosa pine of the Transition zone. Sites are consistently close to streams, some on the valley floor, others (like the Mayhill Administrative Site) on terraces above the valleys (Kelley 1966: 60).

The village plan during the ceramic period was an open, scattered arrangement of pithouses. Village size was small, with an estimated five to ten pithouses being occupied at one time. Ceremonial structures have not been recognized (Kelley 1966: 61). Subsistence was based upon irrigation agriculture and upon procurement of naturally occurring foods.

A number of burials have been previously located in excavations throughout the area. Flexed posture is common, with placement on the back or side. Burial was in house fill, under house floors, or in the trash between houses. Grave associations included occasional ornaments and a few "killed" bowls (Kelley 1966: 64).

The Penasco Valley supported a smaller farming population that was found in the Sierra Blanca area to the north. This valley was also abandoned earlier than other Jornada areas, perhaps around 1300 A.D. (Kelley 1966: 59, 204, 632).

The Mayhill Administrative Site was first recorded by H. W. Yeo in 1931 as site LA 505 in the files of the Museum of New Mexico Laboratory of Anthropology. Locally made pottery collected by Yeo was assigned to the Chupadero Black-on-White, El Paso Polychrome, and Three Rivers Red-on-Terracotta types, and also, to undifferentiated plainwares (probably Jornada Brown). These would suggest a temporal span for the site from 1150 to 1300 A.D., corresponding to Lehmer's (1948) Dona Ana-Three Rivers or El Paso-San Andres Phases, or to Kelley's (1966: 62-63) late Glencoe Phase.

Field Methods

On June 13, 1978, the condition of the site was as follows: three major segments of backhoe trench had been excavated (see Figure 1). The remains of at least four individuals were evident in these. The backhoe had disturbed the skeletal remains of all burials, with substantial portions having been deposited on and through the adjacent backdirt piles. Project personnel have recovered bones from Burials 2, 3, and 4 which were evident on the surface of the backdirt. Fortunately, these burials were sufficiently distant from each other that no mixing of bones could have occurred. In addition to the trench burials, some isolated pieces of long bone and fragments of abalone (*Haliotis* sp.) shell were found at the intersection of two trench segments north of Burial 4, as shown on Figure 1.

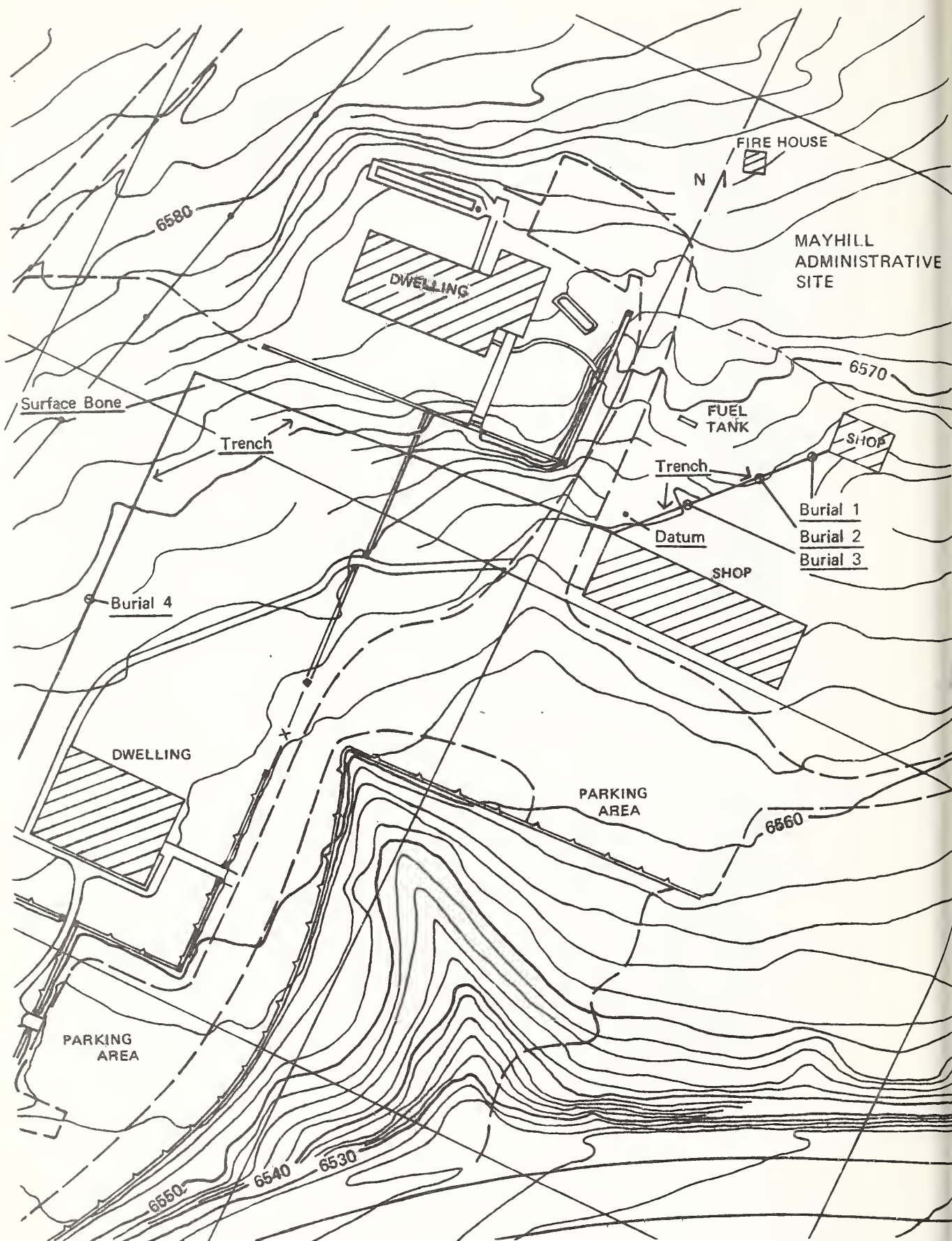


Figure 1. Backhoe Trenches and Excavated Burials at the Mayhill Administrative Site.

Field procedures for recovering the skeletal material were conducted in two stages. First, all backhoe dirt surrounding a burial was screened through a 1/4-inch mesh screen. Substantial skeletal material was recovered in this way. Second, the soil was removed down to the level of the burial, and what remained of the skeleton was uncovered, recorded, mapped, photographed, and removed. No subsurface deposits of cultural materials were encountered during the excavations, nor were any observed in the backhoe trenches. Mapping was done by reference to fixed points, including an unlabeled benchmark which served as datum (see Figure 1), and the corners of several permanent buildings. All fill surrounding the burials was passed through the 1/4-inch mesh screen. The original fieldnotes and photographs are on file in the Supervisor's Office, Lincoln National Forest, Alamogordo, New Mexico.

Framework of the Analysis

In current archeology, culture is viewed as a system made up of interrelated and interdependent parts. A corollary of this view is that there exists a systemic, interdependent relationship between those elements of material culture which are preserved in the archeological record, and those nonmaterial elements (ideology, social organization, etc.) which are not. The material aspects of the archeological record are, therefore, thought to be constrained in their form, quantity, and distribution by the nonmaterial elements with which they were once interrelated. This being the case, the material components of the archeological record, and the contexts in which they are found, can yield information concerning the nonmaterial portions of past cultural systems. It is this potential for inference beyond matters of technology and subsistence which raises archeology to the level of a generalizing social science.

Mortuary remains are one component of the archeological record which can yield useful information concerning perishable aspects of past cultural behavior. Mortuary remains are most particularly useful in analysis of the social organization of past populations. The framework for this approach has been set forth in a number of sources (Saxe 1970; Brown 1971; Binford 1971; Tainter 1977, 1978). Most basically the approach posits a relationship between the form of a mortuary ritual on the one hand, and the social characteristics of both the deceased person and the persons engaged in the ritual, on the other. This idea, which has been ethnographically validated (Saxe 1970; Binford 1971), suggests that archeologically observed variations in mortuary ritual may be used to drive information concerning the social characteristics of prehistoric individuals, and by extension, concerning the organizational characteristics of the societies in which they held membership. Fundamental in this approach is the development of cross-culturally valid approaches for analyzing social

characteristics from mortuary remains. There are two social characteristics which have benefitted from the development of cross-culturally valid approaches. These are rank differentiation and corporate group differentiation.

The analysis of rank differentiation is based upon Binford's (1971: 17, 21) observation that the form of a mortuary ritual will be determined by, among other factors, the size and composition of the social aggregate recognizing obligatory status responsibilities to the deceased. Binford suggests that such a larger array of duty-status relationships (which is characteristic of persons of high rank) will entitle the deceased to a larger amount of corporate involvement in the act of interment, and to a larger degree of disruption of normal community activities for the mortuary ritual. Expanding upon this, it has been proposed (Tainter 1973) that both the amount of corporate involvement and the degree of activity disruption will positively correspond to the amount of energy expended in the mortuary act. Directionally, higher social rank of a deceased individual will correspond to greater amounts of corporate involvement and activity disruption, and this should result in the expenditure of greater amounts of energy in the interment ritual. Energy expenditure should in turn be reflected in such features of burial as size and elaborateness of the interment facility, method of handling and disposal of the corpse, and the nature of grave associations. Reversing this reasoning, when sets of mortuary data cluster into distinctive levels of energy expenditure, this occurrence will signify distinctive levels of social involvement in the mortuary act, and will reflexively indicate distinctive grades or levels of ranking. The energy expenditure argument has been ethnographically validated. In a set of 103 cases, the proposition was not contradicted once (Tainter 1975).

The analysis of corporate group differentiation proceeds on the basis of a provocation hypothesis set forth by Arthur Saxe:

To the Degree that Corporate Group Rights to Use and/or Control Crucial but Restricted Resources are Attained and/or Legitimized by Means of Lineal Descent from the Dead (i.e., Lineal Ties to Ancestors), Such Groups Will Maintain Formal Disposal Areas for the Exclusive Disposal of Their Dead, and Conversely (1970: 119).

Saxe initially tested this hypothesis against a limited sample of three ethnographic cases and found consistent confirmation. More recently, Lynne Goldstein (1976) has tested this hypothesis on a more extensive sample of 30 cases. The results of this test seem to indicate (a) that the presence of formal disposal areas is consistently associated with corporate groups practicing lineal descent and (b) that most, though not all, such groups use formal disposal areas. Thus, the presence of formal disposal areas will strongly indicate that the archeologist has isolated individual corporate groups, and the absence of formal cemeteries will suggest, with a probability which is high but less than unity, the absence of social groups of this sort. The last interpretive ambiguity must be kept in mind.

Mayhill Mortuary Data

The three burials recovered from the Mayhill Administrative Site constitute a very limited sample. Nevertheless, analysis of these burials reveals informative patterns.

Burial 1 proved to be isolated bone from an adult male, redeposited from some unknown location when a trench was dug through the site. This bone will not be dealt with further.

Burial 2 was a female, aged 30-40 years. The upper part of this burial has been removed by the backhoe. The pelvis, legs, and left radius and ulna were recovered in situ. Despite the disturbance, the original body position can be ascertained. Burial 2 was interred supine with at least the left arm extended by the side. The legs are tightly flexed, drawn back toward the head, and tilted slightly to the right. Orientation was approximately N 46° W. No grave associations were observed. One sherd was found in the grave fill next to the forearm. It may have been used to excavate the grave.

Burial 3 was a male, aged 40+ years, possibly as old as 50 years. This was a disarticulated interment, with some portions of the appendicular skeleton showing correct articulation (the right leg and right arm were recovered this way), and other portions scattered about, but maintaining some semblance of articular correctness. For example, a cluster of ribs were found together in correct anatomical position, as were several vertebrae. The rib cluster and vertebral cluster, however, were not articulated to each other. The skull was found lying face down adjacent to the right innominate and to several foot bones. This disarticulation was definitely preinterment. No associations or apparent orientation were observed.

This is an unusual burial. Interment was delayed until some decomposition had occurred, and the body was then divided into several parcels (legs, arms, vertebrae, ribs) which were placed in scattered locations in the grave.

Burial 4 was a male, aged 24-26 years. Interment position was similar to that of Burial 2. The individual was found supine with head facing up. The arms and legs were removed by the backhoe. However, the equipment operator observed that the legs were tightly flexed over the chest. This position would correspond to that of Burial 2, as well as to several other burials recovered in the Mayhill area (Kelley 1966: 64). Given the position of the body nearly perpendicular to the backhoe trench, and the narrowness of the trench, the burial could have been interred in no other position. Orientation was N 44° W. No grave associations were observed.

Interpretation of the Data

What is most striking about these burials is the relative simplicity of the mortuary procedures. Individuals were most commonly interred in a flexed position, in a simple earthen grave, with no associations. The consistency in orientation between Burials 2 and 4 is noteworthy. The unusual interment is Burial 3, the disarticulation inhumation. The procedures involved in this person's mortuary ritual were noticeably more elaborate than the procedures accorded to Burials 2 and 4. The custodial care and processing into an ultimately disarticulated state reflect greater amounts of energy expenditure and social involvement than was given to the other burials recovered. These facts suggest that Burial 3 was of higher rank, status, or prestige in the community than were Burials 2 and 4.

Anthropologists frequently distinguish between societies which are relatively egalitarian and societies which practice some form of ascriptive ranking. In egalitarian societies statuses are acquired, and higher status is associated with age, sex and personal accomplishments of the individual. In societies with ascribed ranking, personal accomplishment is often of diminished importance and the potential for high rank is inherited, either directly or indirectly, by birth.

The fact that Burial 3, the highest ranking burial in the sample, is an older individual (old by the standards of nonindustrial societies) may be significant. The age of Burial 3 suggests that

personal accomplishment, as in attainment of older age, may have been a means of achieving status in this society. Conversely, there is no evidence that rank was ascribed among the population of the Mayhill Administrative Site. Such characteristics would indicate an egalitarian society.

The limited sample, of course, indicates that this suggestion must be regarded as tenuous, and should be subjected to further testing. Two other lines of evidence, however, support the interpretation of egalitarian social organization: 1) the lack of material status indicators (see Stickel 1968); and 2) the paucity of child burials, a characteristic often found in egalitarian cemeteries (cf. Stickel 1968). Again, the limited sample size renders both of these observations subject to potential revision.

The fact that these burials were found clustered in a rather restricted area (particularly Burials 1, 2, and 3) indicates that we may be dealing with a formal cemetery. In terms of Saxe's hypothesis (cited above), this would suggest a society organized into corporate groups. By this point, the caution concerning sample adequacy should not need to be emphasized.

In summary, the mortuary data from the Mayhill Administrative Site suggest that Jornada Mogollon populations in this area between 1150 and 1300 A.D. were organized on the basis of egalitarian corporate groups. The status of these populations as low density agriculturalists is not inconsistent with this interpretation.



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PAPER NUMBER TWENTY-FIVE

OSTEOLOGICAL ANALYSIS
OF THE
MAYHILL BURIALS
LINCOLN NATIONAL FOREST, NEW MEXICO

By

Charles M. Sheldon

Introduction

This report includes analysis of the human osteological material recovered from the Mayhill Administration Site as referred to in the preceding paper by Joseph A. Tainter. The analysis was done at the Laboratories of Physical Anthropology, University of New Mexico, under guidance of Dr. Stanley Rhine.

The burials were washed, inventoried, numbered, and preserved in polyvinyl acetate. Ribs and smaller fragments were retained, unpreserved, for possible future chemical analysis.

Establishing age at death was accomplished using mainly dental development and tooth wear (Brothwell, 1972: 69), and changes in the pubic symphysis (McKern and Stewart 1957). Sex was established using subjective criterion described in Bass, 1971. Stature estimation was made using tables compiled by Genoves, 1966.

Burial Descriptions

Burial 1

Burial 1 is sparsely represented by the left portion of the pubis (anterior pelvis), two shaft fragments from the left humerus, and two shaft fragments from the left ulna. Several fragments of nonhuman long bone are also present. This individual was probably a male considering the general morphology of the pubis and shape of the obturator foramen. These are adult bones, but closer age at death determination is not possible.

Burial 2

This adult female has an estimated age at death of 30-40 years. The overall condition of the burial is poor, with the skull badly fragmented, and the ends of all the long bones, except the left femur, missing.

The innominates and sacrum display extensive erosion, but are mostly intact. This pelvic girdle has fairly wide sciatic notches, preauricular sulci, and very little anterior curvature in the sacrum. These features together with generally gracile landmarks on the skull support the female sex.

Twenty-two loose teeth are present, the incisors showing heavy shoveling. The first and second molar show a moderate amount of wear.

The long bones are generally gracile. The only anomalies present are gnaw marks on the left radius and ulna, probably from rodent activity. The vertebrae are all extremely fragmentary, but none of three fragments show any signs of osteoarthritis. Stature is estimated at 153cm. (60.2 inches), using the complete left femur.

Burial 3

This adult male whose estimated age at death is 40-50 years is in poor condition. The anterior portion of the skull is broken away and the remaining portion is distorted from ground pressure. Teeth present in the right fragment of the mandible show extreme wear, with no enamel left on the incisors. The only complete long bone is the right radius. The remaining long bones are present, in an eroded broken condition.

The left innominate is missing the ilium, but displays a narrow sciatic notch, flat auricular surface, and narrow subpubic angle.

Areas of muscle attachment are well developed, and the bones are generally robust. Osteoarthritis is present as "lipping" on the borders of the lumbar vertebrae and on the distal radii (wrist area). Stature was estimated at 162cm. (63.7 inches), using the reconstructed right radius.

Burial 4

This adult male has an estimated age at death of 24-26 years. This burial is well preserved, showing little erosion. Long bone breakage is extensive because of being unearthed by a backhoe.

The skull is in excellent condition, missing only the lower central incisors and right second premolar. The remaining incisors are heavily shoveled. This skull has very large mastoid processes, and zygomatics (cheek bone). Although broken, the long bones display large areas of muscle attachment. The innominates have very narrow sciatic notches, with flat auricular areas. All landmarks on this individual are robust and "very male".

An additional articular facet is present on the left anterior portion of the fifth and sixth cervical vertebrae. No osteoarthritis was observed.

Stature estimation 167cm. (65.7 inches), was made using the reconstructed right femur.

Conclusion

Three of the four individuals from this sample were in very fragile, poor condition. Because of meticulous recovery and packaging for transportation, these burials remain in good enough condition to display several interesting characteristics.

Even though the sample is small, the age range spans more than 20 years, with the oldest, Burial 3, being at about the top of the age range for most prehistoric Southwest populations. All of the burials indicate these people were basically healthy, with no signs of traumatic injury.

These burials will be retained by the Laboratories of Physical Anthropology, University of New Mexico and are available for inspection and analysis to any qualified personnel.

Craniometrics

Burial 4

Skull

| | |
|--------------------------------|-------|
| Maximum Length | 165.0 |
| Maximum Breadth | 148.0 |
| Basion-Bregma | 138.0 |
| Minimum Frontal | 93.0 |
| Bizygomatic | 134.0 |
| Nasion-Prosthion | 72.0 |
| Nasion-Gnathion | 116.0 |
| Auricular Height | |
| Porion-Nasion | 87.0 |
| Basion-Prosthion | 90.0 |
| Basion-Porion | 60.0 |
| Basion-Nasion | 95.0 |
| Nasal Height | 23.5 |
| L. Orbital Height | 47.5 |
| L. Orbital Breadth | 41.0 |
| Int. Palatal Length | 44.0 |
| Int. Palatal Breadth | 46.0 |

Mandible

| | |
|-----------------------------------|-------|
| Symphyseal Height | 27.2 |
| Height, Ascending Ramus | 65.0 |
| Width, Ascending Ramus | 32.0 |
| Diameter Bigoneal | 103.5 |
| Diameter Bicondylar | 128.5 |

Indices

| | |
|---------------------------------|-----|
| Cranial Index | 90 |
| Cranial Module | 150 |
| Mean Height Index | 88 |
| Length Height Index | 84 |
| Breadth Height Index | 93 |
| Upper Facial Index | 54 |
| Total Facial Index | 87 |
| Nasal Index | 44 |
| Orbital Index | 116 |
| Palatal Index | 105 |
| Flatness Cranial Base | 43 |
| Prognathism | 95 |
| (Flowers) | |

All measurements are in millimeters

Burial 4 had the only measureable skull from this sample.

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PAPER NUMBER TWENTY-SIX

THREE LIMESTONE BOULDER MORTAR HOLES,
VERDE VALLEY,
PRESCOTT NATIONAL FOREST, ARIZONA

By

Harlow A. Yaeger
and
Dee F. Green

Introduction

This feature was discovered by State Highway Archeologist Laurens C. Hammack during the course of a haul road clearance survey on January 13, 1978. Hammack's report (1978) states that in his opinion the boulder is associated with prehistoric site AZ:0:5:29 (ASM), which lies outside the National Forest boundary along the Verde River near Cottonwood, Arizona. The feature consists of a limestone boulder 3.12 meters long by 1.98 meters wide which contains three circular ground mortar holes.

The feature lies within a proposed right-of-way for a materials haul road. Hammack (1978: 2) has suggested that the boulder be moved from the right-of-way and replaced in its original position after the road is no longer needed. Due to the fractured nature of the limestone boulder, it is doubtful that it would survive two moves intact. We have recommended, therefore, that the boulder be avoided and have recorded the feature prior to any disturbance or road realignment.

Data Collection

Data collection consisted of photographing the boulder and holes from various angles and taking measurements. The three holes were arbitrarily designated A, B, and C, and are so labeled in Photo 1. The stone in Mortar Hole B seems to have been placed there recently and does not appear to have been used as a pestle.

Dimensions

Boulder (Photo 1)

Axis D-D = 312 centimeters

Axis E-E = 198 centimeters

Boulder is 53 centimeters high - from ground level to highest point.

Boulder is 5.18 meters west of the Forest boundary fence.

Mortar Hole "A" (Photo 2)

20 centimeters in diameter (tapered to bottom)

15 centimeters deep

Mortar Hole "B" (Photo 3)

25 centimeters in diameter (tapered to bottom)

24 centimeters deep

Mortar Hole "C" (Photo 4)

19.68 centimeters in diameter (tapered to bottom)

12.70 centimeters deep



Photo 1. Limestone boulder showing three mortar holes.



Photo 2. Closeup of Mortar Hole A.





Photo 3. Closeup of Mortar Hole B, stone in hole is NOT a pestle.



Photo 4. Closeup of Mortar Hole C.



PAPER NUMBER TWENTY-SEVEN

A CULTURAL RESOURCE SURVEY
OF THE
LA MADERA RANGER SALE
CARSON NATIONAL FOREST, NEW MEXICO

By

Rex L. Tjaden

Introduction

A Ranger Sale for a small quantity of timber has been proposed by the El Rito Ranger District of the Carson National Forest, New Mexico. The proposed Ranger Sale is comprised of one parcel of land within Canon de la Madera which is located directly west of the town of La Madera, New Mexico. Logging operations carry the potential risk of impacting cultural resources which may be present within the proposed sale area. In order to comply with the National Historic Preservation Act, the National Environmental Policy Act, Executive Order 11593, and 36 C.F.R. Part 800, a cultural resource survey was conducted at the request of Paul R. Nordwall, Deputy Forest Supervisor, and Raymond D. Brown, El Rito District Ranger, Carson National Forest. The survey was conducted by the author on July 19, 1978.

The proposed sale is located on both sides of the intermittent drainage of Canon de Madera which flows eastward into Rio Vallecitos. The canyon is long and narrow being formed by steep ridge slopes of the Ortega Mountains. The elevation varies from 6560 feet on the eastern edge to 7300 feet on the western edge. Vegetation is best described as an ecotone association primarily composed of ponderosa pine (Pinus ponderosa), pinyon pine (Pinus edulis), and Utah juniper (Juniperus osteosperma). Sagebrush (Artemisia sp.), yucca (Yucca sp.), cholla and prickly pear (Opuntia sp.) and various grasses dominated the small open areas of the sale.

The Survey

Forest Service policy requires at least a ten percent sample of proposed timber sale areas prior to assessment for archeological clearance. A stratified sampling design was utilized in order to sample the approximately 232 acres located within the sale boundaries. The sale area was stratified into two units, one defined as that area of the sale which lies on the north side of the canyon drainage and the other defined as that area which lies on the south side of the drainage. A transect, 20 meters wide, and running east-west was placed equidistance from the north boundary of the proposed sale and the canyon drainage in order to sample the first stratified area. A similar procedure utilizing the south sale boundary and the drainage was followed for sampling the other unit. This sampling strategy was designed to provide field efficiency and adequate coverage of a long and narrow area which was naturally divided by a drainage into two nearly equal units. Each transect covered 4.9 linear miles and together provided a sample area of 77.9 acres for approximately 34 percent of the proposed sale.

One archeological site (AR 03-02-02-34) was located during the survey as well as a nonsite lithic scatter and several isolated lithic artifacts. The boundary of the site was flagged.

Site Description

AR 03-02-02-34. This is a limited activity site possibly used as a short term hunting and/or butchering camp. It is comprised entirely of lithics including five observable projectile points or point fragments (see Figure 1). Utilized flakes were most dominant although some thinning flakes and other secondary debitage were also noted. Approximately 60 percent of the lithics were obsidian while the rest were primarily black basalt. A few flakes of Pedernal chert were also observed.

Conclusions

Cultural resources found within the proposed La Madera Ranger Sale consisted of one archeological site (AR 03-02-02-34), a small nonsite lithic scatter and several isolated lithic artifacts. This material suggests that prehistoric hunting and/or butchering activities may have taken place within the sale area. This view is supported by the type of site, the type of artifacts and the area in and around which the material was observed.

The site (AR 03-02-02-34) recorded within the sale was defined as a short term hunting and/or butchering camp for several reasons. First, there was no evidence of permanent or semi-permanent habitation structures. Although perishable material may have been utilized, structural materials evidenced by known nearby habitation sites (Skinner 1965, 1968; Tensfield 1978, and Tjaden 1978a) consisted of at least some stone and/or gravelly adobe. The lack of permanent or semipermanent habitation evidence suggests short term use of reuse during weather conditions requiring minimal protection from the elements. Short term hunting and gathering activities during early fall, spring and summer when snow cover is either absent or patchy offers a reasonable alternative to a permanent occupation classification.



AR-03-02-02-34
Base of Point
Black Obsidian With
Tan Specks



AR-03-02-02-34
Dark Gray Obsidian



AR-03-02-02-34
Black Obsidian



AR-03-02-02-34
Dark Gray Obsidian



AR-03-02-02-34
Black Basalt



Non-Site Scatter
Black Obsidian

Figure 1. Projectile Points (actual size).

The artifactual inventory observed at the site also lends support to the short term hunting and/or butchering interpretation. Five projectile points or point fragments were observed during a brief inspection of the site area. An additional point (see Figure 1) was located within the non-site lithic scatter located approximately 100 meters west of the site, on the same side of the drainage. These artifacts are suggestive of small and/or large game hunting. Utilized flakes were most dominant at the site and at the non-site scatter where only a few thinning flakes and secondary debitage were observed. No decortication flakes, cores or hammerstones were observed at either locus. While one might expect a significantly large proportion of utilized flakes at a permanent or semipermanent habitation site, one might also expect some evidence of decortication flakes, cores and hammerstones. The lithic inventory at this site and at the nonsite scatter are indicative of a light weight and portable lithic assemblage which would be an important asset for hunting and gathering activities performed away from permanent habitation sites. Sites of similar artifact inventories have been reported and described as possible short term hunting and/or butchering camps in similar environmental conditions (Henderson 1977a, 1977b; and Tjaden 1978b, 1978c). The absence of any observable ceramics might also be indicative of mobile groups who did not want to be hindered by fragile, bulky and often times, heavy ceramic containers. The possibility does exist that a preceramic group or groups were responsible for the observed cultural remains. However, the projectile forms are not indicative of known preceramic types and little evidence exists within the general area for such an occupation.

A final consideration must be made for the area in which the cultural remains were found. Almost all of the artifacts observed were located in the western one-third of the sale area. This area is closer to the higher mountains and potential populations of large game and further from the Rio Vallecitos drainage with its potential permanent water, arable floodplain and rich aquatic and flora resources. Canon de la Madera would offer a viable transportation route into the higher mountains by offering not only a natural pathway but also by offering small quantities of a variety of edible flora products often associated with minor drainages.

The above evidence and reasoning tends to support the idea that the proposed sale area and specifically the site and nonsite lithic scatter areas were utilized prehistorically for hunting and/or butchering activities. Temporal association is problematical due to the lack of ceramics and architecture which offers the primary means of dating unexcavated archeological sites. This is complicated by the fact that very little archeological research has been undertaken in the general area. Most written accounts of archeological work within the general area indicate that the time period between A.D. 1200 and A.D. 1500 was the most active prehistorically (Wetherington 1968). The cultural remains observed within the proposed La Madera Ranger Sale are possibly representative of a similar range of time.



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PAPER NUMBER TWENTY-EIGHT

A CULTURAL RESOURCE SURVEY
OF THE
ALAMOSA TIMBER SALE

By

Rex L. Tjaden



Introduction

A timber sale has been proposed by the El Rito Ranger District of the Carson National Forest, New Mexico. The proposed sale is located directly west of Canon Plaza, New Mexico. Logging operations carry the potential risk of impacting cultural resources which may be present within the proposed sale area. In order to comply with the National Historic Preservation Act, the National Environmental Policy Act, Executive Order 11593, and 36 C.F.R. Part 800, a cultural resource survey was conducted at the request of Paul R. Nordwall, Deputy Forest Supervisor, and Raymond D. Brown, El Rito District Ranger, Carson National Forest. The survey was conducted by the author on July 13, 14, 17, and 18, 1978. Dic Rosemier, El Rito Ranger District Timber Staff, assisted on the survey on July 14, 1978.

The proposed sale is located around several intermittent drainages including all or parts of Canada Burro, Canada Gallina, Canada Alamosa, and Canada Llaves which feed into Rio Vallecitos. These drainages are formed by predominantly east and west facing ridge slopes. Elevation varies from 8150 feet in the eastern corner to 9341 feet in the northwest section. Vegetation is best described as a ponderosa pine (Pinus ponderosa) forest with scattered patches of Douglas fir (Pseudotsuga menziesii), white fir (Abies concolor), spruce (Picea sp.), and quaking aspen (Populus tremuloides). Some pinyon pine (Pinus edulis) was observed in the eastern most corner of the sale. Other vegetation observed included Gambel oak (Quercus gambelii), yucca (Yucca sp.), prickly pear (Opuntia sp.), and various grasses.

The Survey

Forest Service policy requires at least a ten percent sample of proposed timber sale areas prior to assessment for archeological clearance. A systematic transect sampling design was utilized in order to sample the approximately 2680 acres located within the sale boundaries. The transect interval selected was one-fourth mile with placement aligned east-west corresponding with the United States Geological Survey System grid. Each transect was 40 meters wide and was covered by two people spread across the width, or by one person who doubled back along the transect centerline, surveying a 20 meter width each way. This sampling strategy was designed to provide adequate coverage of the sale

area and to eliminate any bias relative to suspected archeological site location. The sample contained 14 transects, which covered 16.25 linear miles and provided a sample area of 258.4 acres or approximately 9.6 percent of the proposed sale. Three linear miles of nonrandom transects were also surveyed in order to travel from one transect to another. These nonrandom transects were estimated to cover a 10 meter width and provided an additional 23.9 acres of surveyed area. In addition, survey and mapping procedures for approximately 3.5 miles of the Hallack and Howard Timber Railroad designated as a historic site (AR 03-02-02-29) in a previous Forest Service clearance report (Henderson 1977) added another 55.7 acres into the surveyed total. The combined surveyed area was equal to approximately 12.6 percent of the proposed sale.

One historic site (AR 03-02-02-33) was found during the survey. Segments of a second historical site (AR 03-02-02-29) which was previously recorded were also identified. These segments consist of parts of the Hallack and Howard Lumber Company Railroad. Prehistoric artifacts were limited to two utilized flakes (one gray obsidian, and one dark brown chert).

Potential problems in identifying the cultural resources on the proposed sale included areas of dense ground cover and thick needle and leaf litter.

Site Descriptions

AR 03-02-02-29. This site was previously recorded (Henderson 1977) and consists of a narrow gauge railroad grade. Sections of the grade still contain the wooden ties and an occasional iron rail spike can also be observed. This railroad grade was constructed for logging operations by the Hallack and Howard Lumber Company which was in operation in La Madera, New Mexico, from 1913 to 1927 (Myrick 1970). Portions of this railroad grade were observed and recorded during the cultural resource survey of the Llaves Timber Sale, El Rito Ranger District, Carson National Forest (Henderson 1977). Additional segments were located and mapped during this survey.

AR 03-02-02-33. This site appears to be the remains of a historic railroad construction and maintenance camp or logging camp which was possibly associated with the Hallack and Howard Lumber Company logging railroad (AR 03-02-02-29) previously described. The site consists of a trash dump, a small structure which was partially or wholly subterranean and remnants of which may have been wooden tent platforms. The trash camp contained a variety of items including condensed milk cans,

a kerosene lantern base, a galvanized water can, Prince Albert tobacco pocket tins, coffee, cocoa and baking powder cans, brown and purple glass fragments, a 50-gallon wooden barrel iron loop, leather shoe fragments, rubber tire fragments, an auto head-lamp, tin cups, a small portable wood or coal heating and/or cooking stove and numerous unidentified 1-gallon cans.

Conclusions

Cultural resources found within the proposed Alamosa Timber Sale consisted of one historic site (AR 03-02-02-33) believed to be a railroad and/or logging construction and maintenance camp, segments of a previously recorded historic railroad site (AR 03-02-02-29) and two isolated utilized lithics.

The lack of prehistoric sites and the paucity of prehistoric artifacts found during the sample survey indicates only minimal use of the area prehistorically. Two adjacent cultural resource surveys (Henderson 1977; Smith 1976) support this view for the general area. Hunting may have been the activity responsible for the presence of the two utilized flakes.

The two historic sites located within the proposed sale are representative of an industry important in both the early and continued use and development of the local area. Both of these sites are believed to be directly associated with the Hallack and Howard Lumber Company which was operating in La Madera, New Mexico from 1913 to 1927. The railroad segments found within the proposed sale are portions of the Vallecitos Spur and were constructed beginning in 1922 and abandoned in 1926 (Myrick 1970). The postulated railroad construction and/or logging camp is believed to date to this same period of time.



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PAPER NUMBER TWENTY-NINE

A CULTURAL RESOURCE SURVEY
OF THE
SISMEROS TIMBER SALE
CARSON NATIONAL FOREST, NEW MEXICO

By

Rex L. Tjaden

Introduction

A timber sale has been proposed for a parcel of land located approximately 10 miles southeast of Canjilon, New Mexico, in the Canjilon Ranger District of the Carson National Forest. Logging operations carry the potential risk of impacting cultural resources which may be present within the proposed sale area. In order to comply with the National Historic Preservation Act, the National Environmental Policy Act, Executive Order 11593, and 36 C.F.R. Part 800, a cultural resource survey was conducted at the request of Paul R. Nordwall, Deputy Forest Supervisor, and David Stewart, Canjilon District Ranger, Carson National Forest. The survey was conducted by the author between June 19 and 22, 1978.

The proposed sale area is located in Madera Canyon with Mogote Ridge on the west and an unnamed ridge on the east used as the primary sale boundaries. Topographically, the area is dominated by east and west facing ridge slopes, narrow ridge crests and occasional gentle sloping meadows found along the intermittent stream which drains Madera Canyon during snow melt and heavy rain. Elevation varies between 9100 feet in the canyon drainage and 9723 feet on Mogote Ridge. Yearly average precipitation for the area is 19-25 inches occurring in equal amounts of snow and rain. Vegetation within the proposed sale area is best described as a ponderosa pine (Pinus ponderosa) forest with an intermixing of Douglas fir (Pseudotsuga menziesii), white fir (Abies concolor), quaking aspen (Populus tremuloides), and gambel oak (Quercus gambelii).

The Survey

According to Forest Service policy, the survey was to cover at least ten percent of the approximately 1000 acres within the sale boundary prior to assessment for archeological clearance. A systematic transect design, utilizing transects 40 meters wide, was used in order to obtain this sample. The transect interval selected was one-eighth mile, with placement aligned east-west corresponding with the United States Geological Survey System grid. This sampling strategy was designed to provide logistical efficiency, adequate coverage and to eliminate any bias relative to suspected archeological site location. The sample contained 16 transects which covered 11.25 linear miles and provided a sample area of 178.9 acres or approximately 17.9 percent of the proposed sale. The 40 meter transect width was covered by doubling back along the centerline of each transect, surveying a 20 meter width each way.

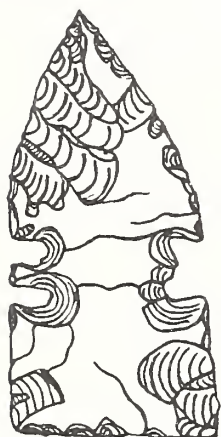
No archeological sites were located during the survey. Two projectile points and four utilized flakes were observed as isolated occurrences. Potential problems in identifying the cultural resources on the proposed sale included areas of dense ground cover and thick needle and leaf litter.

Conclusions

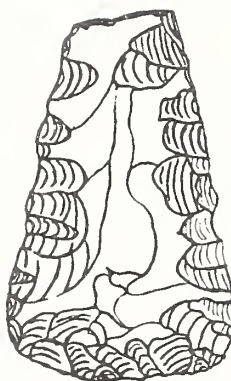
Cultural resources found within the proposed Sisneros Timber Sale consisted of two projectile points (see Figure 1) (one chert, one obsidian) and four utilized flakes (three obsidian, one chert) observed as isolated occurrences. The presence of these few artifacts attests to at least minimal prehistorical or early historical use of the area.

Hunting may have been the primary activity responsible for the presence of these artifacts. Support for this view may be offered from several directions. The sale area has been described as a ponderosa pine forest. Such a vegetational zone presently offers little variety or quantity of edible flora products when compared to that of other zones such as pinyon-juniper woodlands or riverine associations. The ponderosa pine forest with its occasional open meadows, as found in the Sisneros Sale area, does provide good browse for large game animals such as deer and elk. The sale area is presently known to be a secondary elk range with summer being the primary season of use. Deer are also known to be quite common in the area. If present environmental conditions and vegetational zones of the area have remained relatively stable for the last thousand years then hunting and butchering loci and short term camp sites should not be considered unusual. The presence of the two large projectile points found during the cultural resource survey of the proposed sale suggests a large game hunting strategy. Evidence of hunting strategies in the form of short term camps, butchering loci, projectile point breakage or projectile point loss loci and game observation stations has been reported as a result of cultural resource surveys conducted for proposed timber sales in similar areas of close proximity to the proposed Sisneros Timber Sale (Henderson 1977a, 1977b; Tjaden 1978a).

Spatial and temporal association is very problematical due to both the paucity of cultural materials found during survey within the sale area and the dearth of either archeological research within



Projectile Point 1
Pale Orange and White
Glossy Chert



Projectile Point 2
Dark Gray Obsidian

Figure 1. Projectile points, actual size.

the general area or written accounts of such research. A rather tenuous spatial and temporal association based on proximity may be made with the numerous pueblo units found just south of the town of El Rito (Tensfield 1978; Tjaden 1978b) and with Sapawe, an extremely large multistory pueblo complex located on the west bank of El Rito immediately south of Las Placitas. Excavations were conducted for six summers at Sapawe by the University of New Mexico Field School under the direction of Florence Ellis, but unfortunately this work remains unpublished. An organic black-on-white ceramic tentatively identified as Santa Fe Black-on-white was most frequently encountered by the author at Sapawe and at the smaller pueblo units (Tjaden 1977b). This pottery type is dated to 1200-1350 A.D. (Wetherington 1968; Herold and Luebben 1968), a period of time referred to as the Rio Grande Coalition Period in the Northern Rio Grande area. The cultural material observed during the survey of the proposed Sisneros Timber Sale may have been a result of hunting strategies by people living in the El Rito-Las Placitas area during this period of time.

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PAPER NUMBER THIRTY

A CULTURAL RESOURCE SURVEY
OF THE
NAVAJO CANYON POWER DISTRIBUTION LINE
CARSON NATIONAL FOREST, NEW MEXICO

By

Rex L. Tjaden

Introduction

A powerline has been proposed for construction by the Northern Rio Arriba Electrical Cooperative, Inc., of Chama, New Mexico. The proposed powerline is approximately 2.6 miles long and is to be placed in a northeasterly direction beginning near ECHO Amphitheater, which is about 10 air miles southwest of Canjilon, New Mexico. The powerline is to run somewhat parallel to State Highway 84. Construction activities will include transportation of men and equipment, drilling of holes, setting of poles and guys and pulling and typing of conductors. These operations carry the potential risk of impacting cultural resources which may be present within the proposed sale area. In order to comply with the National Historic Preservation Act, the National Environmental Policy Act, Executive Order 11593, and 36 C.F.R. Part 800, a cultural resource survey was conducted at the request of William H. Moehn, Recreation and Fire Management Staff, and David Stewart, Canjilon District Ranger, Carson National Forest. The survey was conducted by the author on August 15, 1978.

Vegetation observed during the survey included pinyon pine (Pinus edulis), Utah juniper (Juniperus osteosperma), sagebrush (Artemisia sp.), yucca (Yucca sp.), cholla and prickly pear (Opuntia sp.) and various grasses. Pinyon pine and Utah juniper dominated the higher and steeper slopes of the area while sagebrush, various grasses and some cacti dominated the lower relatively flat areas.

The Survey

The proposed locations of the powerline poles had been staked and flagged in July, 1978. These proposed pole locations would receive direct physical impact. In order to inspect each of these areas, a 20 meter wide transect utilizing the staked pole locations as a center line was surveyed. This survey procedure also allowed for inspection of a 20 meter wide strip between stakes which would likely receive minor surficial disturbance caused by transportation of men and equipment to each proposed pole location. Approximately 20.7 acres was covered by this survey.

No archeological sites were recorded during the survey. A non-site lithic scatter was observed in the northernmost part of the powerline right-of-way.

Conclusions

Cultural resources found within the proposed powerline right-of-way consisted of a large nonsite lithic scatter located in the northernmost area of the survey, isolated lithic artifacts and two micaceous sherds in the remaining surveyed areas. Obsidian and Pedernal chert utilized flakes were most frequently observed although some basalt flakes were also noted. Although conclusions drawn from such a small surveyed area are highly speculative, a few statements regarding the cultural material observed might be ventured.

A lack of permanent habitation structures, a noted abundance of utilized flakes, a relative absence of decortication flakes and other primary lithic debitage, almost an absence of ceramics, and the nature of dispersion of the cultural material are all suggestive of limited activities and especially that of hunting. Similar sets of cultural resource characteristics have been noted in other areas which presently support large game animals (Henderson 1977; Tjaden 1978a, 1978b). The fact that the cultural resources observed in this survey were primarily situated within a pinyon-juniper woodland may be indicative of both hunting and gathering. A further indication of such limited activity is the presence of a short term campsite (AR 03-02-01-04) located just east of Echo Amphitheater. This campsite may have served as a base for short hunting and/or gathering excursions around the immediate area. The nonsite lithic scatter may represent re-utilization, over a long period of time, of an area especially abundant in flora and fauna products.

Although the two micaceous sherds observed during the survey have not been positively identified, they are similar to a ceramic type present at Sapawe (AR 03-02-02-14) which is located just south of Las Placitas. Dates for this site range from 1200 to 1500 A.D. These dates are also believed to be representative of most prehistoric activity in the Chama District (Wetherington 1968).

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PAPER NUMBER THIRTY-ONE

A CULTURAL RESOURCES INVESTIGATION OF
TWO PROPOSED DRILLING LOCATIONS ON LA JARA MESA
CIBOLA NATIONAL FOREST, NEW MEXICO

By

Regge N. Wiseman

Introduction

Teton Exploration Drilling Company, Inc., proposed to drill two exploratory holes. Each will involve subsurface disturbance through the excavation of drilling-mud pits as well as the drill hole itself. Surface disturbance will result from the movement of project vehicles within a 15-30 meter (50-100 foot) radius of each hole. Once operations have been completed, the impact area will be reseeded. The project is located on the Grants District, Cibola National Forest, New Mexico.

The Survey

The archeological survey was performed by the author, who systematically walked the area within a 45-meter (about 150 feet) radius of the proposed drill location as defined by marked lath. One hundred percent coverage was effected. Where cultural manifestations (sherds, lithic debris) were encountered, sufficient coverage outside the anticipated impact area was made in order to properly assess the cultural remains. Two archeological manifestations, one locality and one site, were found. All cultural features found were recorded on standard Museum of New Mexico site survey forms; all materials observed at the locality were collected and taken for identification and storage at the Museum.

Descriptions of both the locality and the site are given below:

Locality A

Location: Available from the USDA Forest Service.

Description: Very thin scatter of sherds and lithics over an area approximately 20 by 25 meters in size (500m²). Situated in a low area surrounded on the north, west and east by a low, basalt hillock. Elevation is 2465 meters (8010 feet) M.S.L. On locality, vegetation predominated by snakeweed and grass with an occasional pinyon. Hillock covered by pinyon-juniper woodland. All 10 sherds and flakes noted were collected and are described below. No architecture or hearths were noted.

Period: Basketmaker III - Pueblo I; Pueblo II-III, and Historic (?).

Remarks: The widespread nature of the cultural materials and the absence of definable architecture or hearths suggest a number of very short-term uses of this general area. Part of the locality will be impacted by the proposed project unless steps are taken to avoid so doing.

Site Number LA 16611

Location: Available from the USDA Forest Service.

Description: Small sherd area (5 by 15 meters) situated on a low hillock of basalt. Vegetation on site is pinyon-juniper woodland. Small clearing dominated by snakeweed and grass lies 40 meters southwest. Elevation is 2465 meters (8010 feet) M.S.L. At least two vessels, a bowl and a jar, are represented. No architecture or other cultural features were noted.

Period: Pueblo II.

Locality A: Description of Cultural Materials Collected from Surface

Ceramics. (5 sherds)

- (1) Kana-a (?) Gray- Sub-blocky paste with abundant quartz sand temper; surfaces smoothed with hands, leaving characteristic striations.
- (2) Unidentifiable white ware- Sub-blocky paste with sherd temper and "wall-to-wall" carbon streak; unslipped white exterior surface; jar.
- (3) Unidentifiable white ware- Same as sherd #2 but with very fine sand as well as sherd temper; probably from same vessel as #2
- (4) Unidentifiable white ware- Relatively compact to sub-blocky paste with fine sherd and sand temper; probably the same type of pottery as sherds #2 and 3 but from another vessel (bowl).

- (5) Unidentifiable red ware (?)- Paste with irregular break, abundant medium to fine sherd temper with some quartz sand; "wall-to-wall" carbon streak; reddish-tan interior and exterior surfaces. It is probably a jar sherd, but the exterior surface is too weathered to be certain; it could be a red ware or even a historic polychrome type.

Lithics. (5 flakes)

- (1) Chert, light and medium gray and rose colored; 40+ by 31+ by 12+ millimeters. (length, width, and thickness respectively); 6.9 grams; pseudo-dihedral or dihedral platform; three areas of use-retouch, all unifacial-concave 21 millimeters long, notch 4 millimeters across and projection (graver-like).
- (2) Grants Obsidian (opaque black); 18 by 20 by 5 millimeters; 1.3 grams; multiple flake scar platform; one area of use-retouch straight 3 millimeters long.
- (3) Chert, medium gray; 19 by 28+ by 6 millimeters; 2.7 grams; multiple flake scar platform; three areas of use-retouch convex-concave 19+ millimeters long, straight 5 millimeters long, and notch 3 millimeters across.
- (4) Chalcedony, medium to dark gray; small fragment; 0.8 grams; two fragmentary edges may evidence use-retouch, both being a slight edge dulling with what may be a slight polish.
- (5) Chalcedony, medium dark gray; 25+ by 15+ by 5 millimeters; 2.0 grams platform modified; an attempt (un-successful) had been made to fashion a biface from this flake, but thinning difficulties were encountered.

Flake measurements were taken as follows: length is distance from point of impact to distal end of flake; width is greatest distance from lateral edge to lateral edge perpendicular to length measurement; thickness is greatest distance from ventral to dorsal surface (including bulb of force); + signifies incomplete measurement because of broken edge.

Interpretive Discussion

The apparent absence of hearths, architecture, and any other form of stationary facility, the extremely sparse distribution of cultural material, and the apparently large temporal span represented by the pottery make interpretation of the use of Locality A very speculative.

The apparent absence of facilities might be interpreted as indicating very limited use, probably during daylight hours since most overnight campers known today and in the past normally build fires for cooking and/or comfort if at all possible.

The sparse distribution of cultural materials, especially because of the nonclustering aspect, suggests multiple uses of the locality, a factor which partially supports the indications of multiple uses through time as suggested by the ceramic evidence.

Both bowl and jar forms of ceramics are present, but their function in a temporary or special activity context is highly speculative, particularly since they in part represent different time periods. Once more site survey data for the region become available, a study patterned after Goodyear's (1975) may be feasible.

For the number of flakes involved, the lithics represent a great variety of material types, but all are probably local in origin. The evidence for use-retouch on the flakes and other activities is equally broad. Essentially five general kinds of activities can be inferred: (1) unifacial use-retouch flakelets along a straight, concave, or convex-concave edge; (2) dulling and polishing along a straight edge; (3) very small notches; (4) graver-like projections with use-retouch flakelets removed from one direction (unifacial); and (5) formal tool manufacture and/or repair.

Although three topographic edge shapes have been recorded in Category 1, this has been for descriptive purposes only at the present. Current research suggests edge topography is

not particularly instructive (Greiser 1977: 3). All of the Type 1 edges have unifacial use-retouch, a type commonly thought to be indicative of scraping activities. Edges displaying rounding and polishing (2) are sometimes interpreted as evidence for scraping on soft materials, but such specific interpretations are currently the subject of some controversy (Jelinek 1976: 27). The formation and function of very small (3-4 millimeter diameter) notches (3) are not known at this time. The uses of graver-like projections (4) are probably varied. They could be used for incising, puncturing, and the like. And finally, the attempt at biface manufacture suggests at least some formal tool preparation, and thereby refurbishing activities are indicated. The temporal and cultural associations among these items cannot be assessed for reasons previously stated.

Other evidence such as locality location/situation might be **investigated**. One possibility is the use of the nearby clearings for agricultural purposes. Although no conclusions can be drawn without specialized studies, consultation of soil information (Maker, Keetch, and Anderson 1974) suggests this activity to be unlikely. The mesa top soils (Rockland and Thunderbird--Rock Land Association) are generally too shallow for good plant growth (for agricultural species, that is). At least one minor soil type (Torreon Loam) has possibilities, but it has a high clay content and resulting very slow water permeability.

Another possibility is that the location, with its southern exposure and protection from the north, east, and west, would provide favorable "shelter" for brief stops such as during pinyon harvesting or some other plant/animal procurement activity.

To summarize, a variety of activities are suggested by the lithic artifacts and the fact that at least two ceramic vessel types are present. Facilities such as structures and hearths appear to be absent, thereby allowing the inference that the activities represented by the lithics and pottery were very limited as to duration and probably took place during daylight hours. Presumably, the locality's occupants had permanent villages nearby (such as in the San Mateo Valley immediately to the north). Agriculture does not appear to be a likely reason for the occupation of the site; gathering of wild plant and/or animal

foods and materials is considered more likely. However, the ceramics definitely indicate a minimum of two and possibly three periods of use (Basketmaker III - Pueblo I, Pueblo II, and possibly Pueblo V or Historic). This fact, plus the extremely **nonaggregated** surface distribution of cultural materials (and consequent undemonstrable associations of remains) severely limits the extraction of useful information from this locality.

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PAPER NUMBER THIRTY-TWO

AN ARCHEOLOGICAL ANALYSIS
OF THE
CEDAR CREEK SITE
LINCOLN NATIONAL FOREST, NEW MEXICO

By

Joseph A. Tainter



Introduction

The Cedar Creek site is a small and very light surface scatter of pottery and lithics located during the course of an archeological survey on lands of the Smokey Bear District, Lincoln National Forest, New Mexico. The site was found on May 18, 1978, by Joseph Spehar, Smokey Bear District para-archeologist, while assisting the author in surveying the area prior to construction of the Cedar Creek Group Campground (Tainter 1978). Exact locational data is available from the Forest Service. The site, which has been assigned Lincoln National Forest inventory number AR 03-08-01-07, lies near the town of Ruidoso, about one mile northwest of the Smokey Bear District Ranger Station.

At the time the site was discovered during the May 18 survey, it was immediately ascertained that the information content of the site was low and that the site had essentially lost its original integrity. The major reason for this determination was the fact that the area of the proposed group campground had, until the previous year, been occupied by homesites. These structures had been demolished in the summer of 1977, and the remains covered by earthmoving equipment. In addition, the site was located in close proximity to previously established campgrounds. The site had, therefore, suffered from at least four impacts:

1. Construction of the homesites.
2. Protracted collecting by the occupants of the homesites.
3. Collecting by campers.
4. Destruction of the homesites.

The cumulative effect of these impacts was such that, when the site was discovered, the remaining cultural materials were so limited that many archeologists would not have even labeled the manifestation a site. The total inventory of cultural materials recovered amounted to only two pottery sherds and six pieces of chipping debris, found within an area of about 25 square yards. Careful scrutiny of the surrounding area, including an exposed road cut, revealed that cultural materials were definitely limited to this minimal manifestation, and that no subsurface deposits were present.

A decision was made in the field to recover the cultural materials which remained on the site. A major reason for this was that, since the site was surrounded by heavily used campgrounds, additional collecting could be anticipated. Such collecting would have removed the last evidence that the site had existed, possibly within a few months. If the site was not destroyed by collectors, it would certainly have been obliterated by construction of the campground. The decision to recover the materials present was made easier by the sparse quantity of such items. The previous heavy disturbance indicated that the site lacked significance under the eligibility criteria for the National Register of Historic Places.

Setting of the Cedar Creek Site

The site is situated at an elevation of 7000 feet on the lower eastern slopes of Sierra Blanca Peak. The vegetation of the area is dominated by ponderosa pine, with Gambel's oak forming a major component of the understory. A significant feature of the site area is Cedar Creek itself, a small, intermittent stream located about 70 yards south of the site. Cedar Canyon at this point is moderate in width and relatively flat. Aboriginal agriculture employing diversion irrigation from Cedar Creek would have been feasible in the vicinity of the site during periods when the stream flows.

In the area of Cedar Canyon, the mountains of the Sacramento Range rise precipitously to a maximum elevation of 12003 feet at Sierra Blanca Peak. At slightly lower elevation to the east and northeast are the Ruidoso and Bonito Rivers, permanent watercourses which supported the major aboriginal settlements in this area.

Annual precipitation at Ruidoso (elevation 6855 feet) ranges between 14.5 inches and 27.95 inches and at nearby Fort Stanton (elevation 6231 inches) between 6.06 inches and 28.7 inches (Kelley 1966: 12). Ruidoso (and the Cedar Creek site) have a short growing season averaging only 102 days, while the growing season averages 157 days at Fort Stanton (Kelley 1966: 14).

Archeological Background

The Cedar Creek site lies within the area of the Jornada Branch of the Mogollon, as defined by Lehmer (1948). For the ceramic periods which are of interest to this study, Lehmer recognized three temporal phases. Lehmer additionally recognized northern and southern variants in the Tularosa Basin area. Lehmer's phases, along with the best currently available dates for these, are summarized below.

| <u>Southern Variant</u> | <u>Temporal Range</u> | <u>Northern Variant</u> |
|-------------------------|-----------------------|-------------------------|
| Mesilla Phase | 450-1100 A.D. | Capitan Phase |
| Dona Ana Phase | 1100-1200 A.D. | Three Rivers Phase |
| El Paso Phase | 1200-1400 A.D. | San Andres Phase |

Major behavioral characteristics of the Mesilla-Capitan Phases include pithouse architecture and pottery. A sedentary population may be postulated, and a shift to reliance on agriculture may have occurred at this time.

The Dona Ana-Three Rivers Phases are enigmatic and mark a period of cultural transformation. Pueblo-type architecture makes an appearance, although pithouse dwellings continued to be used. This change to surface architecture suggests major changes in Jornada Mogollon social organization and population density. Pueblo-type dwellings are inherently more expandable than pithouses. A shift to surface construction would be expected in a situation in which social units were expanding in size, thus, necessitating the continual accretion of architectural units.

In the El Paso-San Andres Phases, pueblo-type architecture became dominant. Some of the pueblos in the Sierra Blanca region ranged in size up to several hundred rooms (Kelley 1966: 69). For reasons which are poorly understood, the area was depopulated by 1350 or 1400 A.D., thus, bringing an end to the Jornada sequence.

Major recent research in the area has been conducted by Kelley (1966), Human Systems Research (Wimberly and Rogers 1977), and by Bussey (Bussey and others 1976). Kelley's research included excavation of several major sites in the Bonito and Ruidoso drainages to the east of Cedar Canyon. To the west of Sierra

Blanca Peak, in lower elevations of the Tularosa Basin, Human Systems Research conducted a sample survey of the Three Rivers drainage to test propositions concerning cultural change, while Bussey excavated LA 4921, a large pueblo site in the same drainage.

Kelley's (1966) work in the Sierra Blanca area focused on problems of chronology, classification, and culture history. Relatively little attention was given to patterns of prehistoric land use in the region. However, her work contains a wealth of descriptive detail which makes it useful for investigating other types of problems. One fact concerning prehistoric land use patterns is abundantly evident from Kelley's work: the major settlements in the region are consistently located along the Bonito and Ruidoso drainages. Site placement along these drainages suggests diversion irrigation of agricultural fields. Interestingly, the settlements seem to concentrate at lower elevations along these drainages (see Figure 1). Very few permanent settlements exist in the vicinity of the town of Ruidoso. This is expectable given the short growing season which characterizes Ruidoso.

Use of low elevation river valleys for habitation and agriculture seems, then, to be an established fact. Unfortunately, this is about the only fact which has been established concerning Jornada settlement patterns in the area east of Sierra Blanca Peak. The environmental characteristics of the region suggest that a variety of additional settlement types were used aboriginally, and that an entire subsistence-settlement system remains to be delineated.

The topographic diversity of the Sierra Blanca region is high; elevation will change several thousand feet within a few miles. Vegetation zones vary with altitude, a result of increased precipitation at higher elevations. Because of the topographic diversity of the area, different vegetation zones are compressed within short horizontal distances. In the vicinity of the Bonito and Ruidoso Rivers are the Upper Sonoran life zone, characterized by pinyon, juniper and other species adapted to arid conditions, the Transition zone, dominated by ponderosa pine, and at higher elevations, the Canadian and Arctic-Alpine zones. At least 31 edible floral species occur at high altitudes in these mountains (Wimberly and Eidenbach 1977: 22-23), distributed among the different life zones. These species

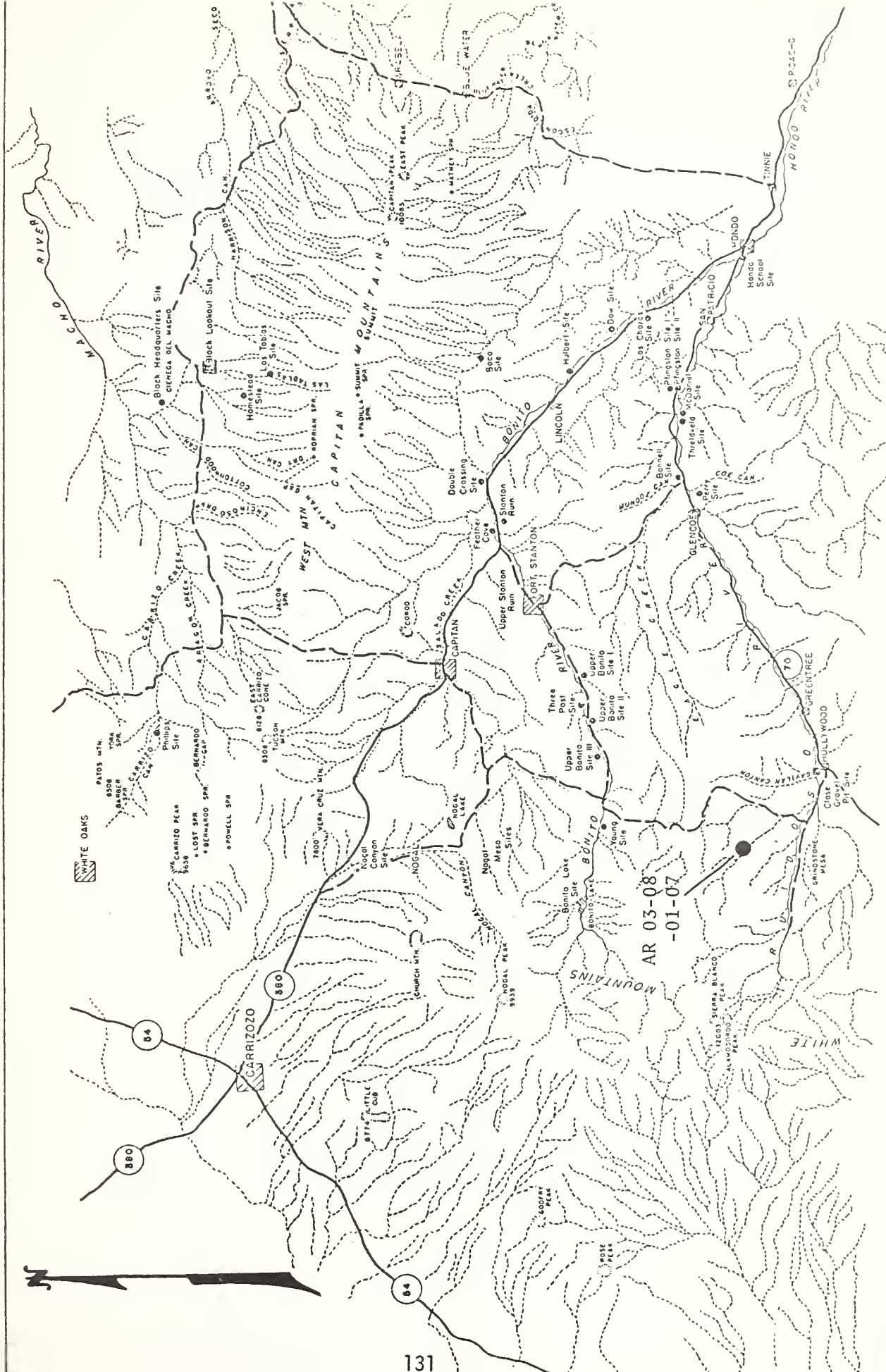


Figure 1. Distribution of major prehistoric settlements in the Sierra Blanca area (after Kelley 1966: Map 8).

yield products useful for human consumption at different seasons and in different locations. To exploit these resources, populations resident along the Bonito and Ruidoso drainages would be expected to have employed short-term special-use camps situated in proximity to the resource being exploited. The archeological record of the mountains surrounding the Bonito and Ruidoso Rivers should, therefore, be characterized by a variety of these special-use sites, exhibiting evidence of short-term occupation. The Cedar Creek site fits into this category.

Cedar Creek Site Cultural Materials

A total of two pottery sherds and six pieces of chipping debris characterized the Cedar Creek site. The two pottery sherds appear to be Jornada Brown, a pottery type which spans nearly the entire Jornada sequence, from at least 900 A.D. to 1300 A.D. A more precise date for the site cannot be derived.

Of the six lithic pieces, five are basalt and the sixth is chert. These may be described as follows:

Flake #1 is a secondary decortication flake of basalt displaying sharp edges and light use marks along its left and right lateral edges. There is no intentional shaping, modification, or retouching.

Flake #2 is a tertiary basalt flake with no modification or retouch. It displays light use marks along its distal and right lateral edges.

Flake #3 is a tertiary basalt flake displaying no modification or use.

Flake #4 is a tertiary basalt flake displaying no modification or use.

Flake #5 is a tertiary basalt flake displaying no modification or use.

Flake #6 is a tertiary chert flake displaying no modification or use.

These data are obviously limited, but some conclusions are indicated. The presence of decortication flakes, and the lack of intentional retouch, indicate that lithic raw material was brought to this location to be manufactured into expedient

tools. These tools were utilized for a specific task and then discarded. The expedient use of the tools suggests that the lithic raw material was abundant and readily accessible, and that the tasks performed were of a simple nature, not requiring a complex lithic technology. These characteristics of tool use are expectable on a site occupied for a short duration to carry out simple, limited activities.

A difficult question to resolve concerns the specific function of the Cedar Creek site. Two major possibilities present themselves.

1. The site may have functioned as a summer agricultural camp. The existence of Cedar Creek would have made the area suitable for intermittent irrigation. However, this possibility is considered unlikely in light of the short frost-free season which characterizes Ruidoso.

2. The site more likely functioned as a hunting/gathering camp. Several species of useful plants and animals occur in the mountains at this elevation, but two stand out as likely possibilities. The site is situated in a dense grove of Gambel's oak, and acorn harvesting is an activity possibly carried out in the area. However, the site is situated far from pinyon stands, and pinyon nuts were a crucial resource which would have been harvested at the same time the acorn crop matured. Thus, the use of Cedar Canyon for gathering acorns would be expected only during years when the local pinyon crop failed. Another resource which could have been exploited is deer, which would have been attracted into the canyon to browse on the low-lying oak. No direct evidence of hunting was found on the site, but this is expectable given the collecting which has occurred. The expedient lithic technology is not inconsistent with butchering activities. At the Bonito Lake site located about seven miles northwest of the Cedar Creek site in a similar topographic setting, Kelley (1966: 395) did find a projectile point in association with a small scatter of Jornada Brown sherds.

Summary

During the ceramic periods of the Jornada sequence, agricultural populations maintained permanent villages along the

Bonito and Ruidoso Rivers of the Sierra Blanca region. These villages were dependent on irrigation agriculture, as well as on the exploitation of natural resources which were seasonally available at various elevations in the Sacramento Mountains. The topographic variation of the area made possible the exploitation of diverse resource zones with minimal travel and transport costs. In order to exploit these seasonally and geographically dispersed resources, local populations maintained seasonal, special-use sites in the vicinity of specific resources. The Cedar Creek site is a seasonal site of this sort. It was occupied between 900 and 1300 A.D. by populations employing an expedient lithic technology in the procurement of acorns and/or deer.

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